A 64-year-old man undergoes 12 weekly bladder instillations of BCG after transurethral resection of a high-grade Stage T1(A) transitional cell carcinoma. Six weeks after receiving his last treatment, he undergoes a cystoscopy and IVP which are normal; however, a voided cytology shows highly atypical cells suspicious for malignancy. The next step is:

A bilateral ureteral catheterization and barbotage for cytology.

B cold cup biopsy of the prostatic urethra.

C brush biopsy of both upper collecting systems.

D repeat cystoscopy with bladder biopsy and IVP in six weeks.

E administration of monthly BCG instillations for one year.

A 64-year-old man undergoes 12 weekly bladder instillations of BCG after transurethral resection of a high-grade Stage T1(A) transitional cell carcinoma. Six weeks after receiving his last treatment, he undergoes a cystoscopy and IVP which are normal; however, a voided cytology shows highly atypical cells suspicious for malignancy. The next step is:

D: "repeat cystoscopy with bladder biopsy and IVP in six weeks." is correct.

Almost all persistently positive cytologies in the first six months after BCG treatment for T1 or Tis disease are due to disease in the bladder, and in this setting an extensive search for extravesical disease is not indicated. In addition, cytologies may continue to revert to normal for three months after the last BCG treatment. Repeat cystoscopy, upper tract evaluation, and bladder biopsy is the most effective way to detect a recurrence. Disease can also recur in the prostatic urethra; however, transurethral bladder biopsy is the most effective means by which to make the diagnosis.

Schwalb DM, Herr HW, Fair WR: The management of clinically unconfirmed positive urinary cytology. J UROL 1993;150:1751-1756.

Cadaveric kidneys are procured from a 52-year-old woman with a five year history of hypertension controlled with a converting enzyme inhibitor. She died of a cerebral hemorrhage. The terminal serum creatinine was 1.2 mg/dl. The kidneys measured 12 cm each. Renal biopsies demonstrate 3% glomerulosclerosis on the right and 8% on the left. Both renal arteries are normal. The best use of these kidneys is to:

A discard them due to history of hypertension.

B discard them due to death from cerebral hemorrhage.

C transplant the right, discard the left due to poor biopsy.

D transplant both kidneys into a single recipient.

E transplant each kidney into a separate recipient.

Cadaveric kidneys are procured from a 52-year-old woman with a five year history of hypertension controlled with a converting enzyme inhibitor. She died of a cerebral hemorrhage. The terminal serum creatinine was 1.2 mg/dl. The kidneys measured 12 cm each. Renal biopsies demonstrate 3% glomerulosclerosis on the right and 8% on the left. Both renal arteries are normal. The best use of these kidneys is to:

E: "transplant each kidney into a separate recipient." is correct.

The shortage of donor organs is the main factor limiting the number of kidney transplants. This has resulted in an expansion of criteria used to assess donor organs. The extremes of donor age represent the largest opportunity for expanding the donor pool. Potential donors with diseases formerly considered contraindications to donation are now being considered as kidney donors. In such cases kidney biopsies are performed and should demonstrate < 10% glomerulosclerosis, as well as the absence of interstitial fibrosis or small vessel disease. Such kidneys can be successfully transplanted with reasonable outcomes.

Rosenthal JT: Expanded criteria for cadaver organ donation in renal transplantation. UROL CLIN N AM 1994;21:283-292.

In the diagnostic evaluation of excess cortisol secretion, the administration of 2 mg of dexamethasone q.i.d. (high dose) for two days results in:

A. no suppression of urinary corticosteroid secretion in normal patients.

B. suppression to less than half the baseline in patients with adrenal hyperplasia.

C. suppression to less than half the baseline in patients with benign cortical adenoma.

D. suppression to less than half the baseline in patients with adrenal carcinoma.

E. increased urinary secretion in patients with adrenal carcinoma.

In the diagnostic evaluation of excess cortisol secretion, the administration of 2 mg of dexamethasone q.i.d. (high dose) for two days results in:

B: "suppression to less than half the baseline in patients with adrenal hyperplasia." is correct.

The dexamethasone suppression test is known to have a false positive rate of approximately 20%. However, false negative tests are rare. Dexamethasone administration should result in suppression of plasma cortisol values (50% of pretreatment value), urine 17-hydroxysteroids and urine free cortisol in patients with Cushing's Syndrome. Pituitary imaging with CT or MRI will disclose an adenoma in 50% of such cases. Cortisol levels fail to fall to these levels in patients with adrenal carcinoma or ectopic ACTH secretion.

Gorges R, Knappe G, Gerl H, et al: Diagnosis of Cushing's syndrome: Re-evaluation of midnight plasma cortisol vs. urinary free cortisol and low-dose dexamethasone suppression test in a large patient group. J ENDOCRIN INVEST 1999;22(4):241-249.

The formation of calcium oxalate stones following small bowel bypass surgery is primarily due to:

A. increased endogenous oxalate production.

B. increased intestinal calcium absorption.

C. increased intestinal oxalate absorption.

D. chronic dehydration.

E. hyperuricosuria.

The formation of calcium oxalate stones following small bowel bypass surgery is primarily due to:

C: "increased intestinal oxalate absorption." is correct.

Enteric hyperoxaluria is often found in patients with extensive bowel disease or resection of the small intestine, in the presence of an intact colon. Fat malabsorption in these patients will bind with calcium to form calcium soaps, thereby leaving less calcium available to bind free oxalate in the small bowel. Moreover, the malabsorption of fatty acids and bowel salts will also increase the colonic permeability to oxalate. Therefore, increased intestinal permeability to oxalate as well as increased free oxalate availability will lead to increased oxalate absorption from the colon with subsequent hyperoxaluria. In addition, to hyperoxaluria, these patients will often have low urine volumes due to fluid losses from chronic diarrhea as well as hypocitraturia, secondary to metabolic acidosis.

Sutton RA, Walker VR: Enteric and mild hyperoxaluria. [Review]. MINERAL & ELECTROLYTE METABOLISM 1994;20:352-360.

A 70-year-old woman has a painful bulging mass per vagina. She denies any urinary incontinence. Physical examination reveals a Grade IV cystocele that requires frequent daytime manual reductions when walking. The best management is:

A. videourodynamics.

B. videourodynamics with a pessary in place.

C. repair of cystocele.

D. repair of cystocele with simultaneous sling procedure.

E. observation.

A 70-year-old woman has a painful bulging mass per vagina. She denies any urinary incontinence. Physical examination reveals a Grade IV cystocele that requires frequent daytime manual reductions when walking. The best management is:

B: "videourodynamics with a pessary in place." is correct.

Preoperative urodynamics with and without prolapse reduction is essential for making the correct diagnosis of masked stress incontinence in women with urogenital prolapse. This occurs in approximately 50% of women with urogenital prolapse. The decision to perform a concomitant prophylactic anti-incontinence procedure should be tailored to individual urodynamic findings.

Chaikin DC, Groutz A, Blaivas JG: Predicting the need for anti-incontinence surgery in continent women undergoing repair of severe urogenital prolapse. J UROL 2000;163:531-534.

A 55-year-old man with an enlarged prostate but no previous voiding symptoms undergoes an abdominoperineal resection for rectal carcinoma. When the indwelling urethral catheter is removed one week postoperatively, he voids with a weak stream and has over 400 ml residual urine. The best management is:

A bethanechol.

B TURP.

C clean intermittent catheterization.

D indwelling urethral catheter.

E terazosin.

A 55-year-old man with an enlarged prostate but no previous voiding symptoms undergoes an abdominoperineal resection for rectal carcinoma. When the indwelling urethral catheter is removed one week postoperatively, he voids with a weak stream and has over 400 ml residual urine. The best management is:

C: "clean intermittent catheterization." is correct.

Urinary retention in this middle-aged man is most likely due to interruption of the neural input to the bladder due to the abdominoperineal resection. In nearly 5-10% of patients, detrusor areflexia is permanent. Intermittent self-catheterization offers the least morbid and most effective treatment. Transurethral resection of the prostate is likely to result in urinary incontinence because of the effects of the neural injury on external sphincter function. Although alpha-blockers such as terazosin can reduce outlet resistance, in the presence of detrusor areflexia, incomplete bladder emptying will persist. Bethanechol will not improve bladder contractility. Chronic indwelling catheters should always be avoided because of significant long-term risks.

Steers W, Barrett D, Wein AJ: Voiding dysfunction: Diagnosis, classification, and management, in Gillenwater J, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY. St. Louis, Mosby Year Book, 1996, pp 1220-1326.

During an uneventful living-related donor nephrectomy, the kidney becomes noticeably soft. The next step is:

A remove the kidney as rapidly as possible.

B administer systemic heparin.

C apply papaverine to the renal artery.

D administer systemic dopamine.

E administer furosemide.

During an uneventful living-related donor nephrectomy, the kidney becomes noticeably soft. The next step is:

C: "apply papaverine to the renal artery." is correct.

Renal artery spasm is the usual cause for softening of the kidney during transplantation surgery. Topical papaverine reduces the magnitude of vascular spasm.

Barry JM: Renal transplantation, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 14, pp 505-528.

During an uneventful living-related donor nephrectomy, the kidney becomes noticeably soft. The next step is:

C: "apply papaverine to the renal artery." is correct.

Renal artery spasm is the usual cause for softening of the kidney during transplantation surgery. Topical papaverine reduces the magnitude of vascular spasm.

Barry JM: Renal transplantation, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 14, pp 505-528.

Alpha-fetoprotein is most frequently elevated in:

A choriocarcinoma.

B carcinoma of the breast.

C bronchogenic carcinoma.

D hepatocellular carcinoma.

E mature testicular teratoma.

Alpha-fetoprotein is most frequently elevated in:

D: "hepatocellular carcinoma." is correct.

Elevated serum alpha-fetoprotein levels have been reported in patients with hepatocellular, pancreatic, gastric, and pulmonary carcinomas as well as benign liver conditions such as hepatitis and cirrhosis. AFP is produced by yolk sac elements in patients with germ cell tumors. These should not be present in patients with mature teratoma or choriocarcinoma.

Klein EA: Tumor markers in testis cancer. UROL CLIN N AM 1993;20(1):67.

Administration of ciprofloxacin may affect metabolism of:

A heparin.

B digoxin.

C coumadin.

D theophylline.

E Dilantin.

Administration of ciprofloxacin may affect metabolism of:

D: "theophylline." is correct.

Quinolone administration may interfere with metabolism of xanthines (i.e. theophylline or caffeine). The effect varies among the quinolones, but is most pronounced with enoxacin and less so with ciprofloxacin.

Lindsay G, Carle WK: Quinolones in general practice. PRACTITIONER 1992;236:876-879.

The consequence of DDAVP when used to treat nocturnal enuresis is:

A increased urine osmolality.

B decreased urinary sodium.

C down-regulation of vasopressin receptors.

D mild hyponatremia.

E mild hyperkalemia.

The consequence of DDAVP when used to treat nocturnal enuresis is:

A: "increased urine osmolality." is correct.

Desmopressin (DDAVP), a vasopressin analogue, is substitutional therapy for nocturnal enuresis due to an absent nocturnal boost of endogenous vasopressin. Moffatt et al found an absolute dryness rate of 25% with this treatment and substantial improvement in a much higher percentage. Desmopressin increases urine osmolality. It does not suppress endogenous vasopressin. Electrolyte studies show no consistent alteration. Hourly nocturnal urine production drops. Chronic usage up-regulates vasopressin receptors.

Moffatt MFK, Harlos S, Kirshen AJ, Burd L: Desmopressin acetate and nocturnal enuresis. PED 1993;92:420.

A 47-year-old man whose father died of prostate cancer presents for a prostatic evaluation. The most appropriate management is an annual digital rectal examination:

A beginning now.

B with serum PSA beginning now.

C with serum PSA and transrectal ultrasonography beginning now.

D beginning at age 50 years.

E with serum PSA determination beginning at 50 years of age.

A 47-year-old man whose father died of prostate cancer presents for a prostatic evaluation. The most appropriate management is an annual digital rectal examination:

B: "with serum PSA beginning now." is correct.

Both the American Urological Association and the American Cancer Society recommend that all men 50 years of age or older with a life expectancy of 10 years or more undergo an annual evaluation consisting of a digital rectal examination and serum PSA determination. Transrectal ultrasonography is utilized for those men with an abnormal digital rectal examination or an elevated serum PSA concentration. Individuals who are at high risk for developing prostate cancer (men who are African American or have a family history) should begin this evaluation at age 40 years.

Cupp MR, Oesterling JE: Prostate-specific antigen, digital rectal examination, and transrectal ultrasonography: Their roles in diagnosing early prostate cancer. MAYO CLINIC PROCEEDINGS 1993;68:297-306.

During the past two years, a 45-year-old paraplegic man requires clean intermittent self-catheterization. He uses proper technique three to four times daily, obtaining 650 ml each time. He has asymptomatic pyuria and bacilluria that is not treated. About every two months he develops a febrile urinary infection that is treated with antibiotics. Cystoscopy shows no stones and there is moderate bladder neck obstruction. There is no reflux. The most appropriate management is:

A suprapubic cystostomy.

B indwelling urethral catheter.

C transurethral prostatic resection.

D chronic antibiotic administration.

E increasing the frequency of catheterization to six times daily.

During the past two years, a 45-year-old paraplegic man requires clean intermittent self-catheterization. He uses proper technique three to four times daily, obtaining 650 ml each time. He has asymptomatic pyuria and bacilluria that is not treated. About every two months he develops a febrile urinary infection that is treated with antibiotics. Cystoscopy shows no stones and there is moderate bladder neck obstruction. There is no reflux. The most appropriate management is:

E: "increasing the frequency of catheterization to six times daily." is correct.

Clean intermittent catheterization (C.I.C.) should be performed as often as necessary (about six times daily in this case) to keep the residual volume below 400 ml. Lapides' concept has been that good blood supply to the bladder is important to maintaining resistance to infection and that volumes above 400 ml lead to overdistention and high intravesical pressures that impede capillary perfusion. Anderson has shown lower infection rates on an every four hour catheterization schedule compared to an every eight hour schedule. Antibiotics are not routinely necessary for asymptomatic bacteriuria. Prophylactic antimicrobials do not reduce the risk of clinical urinary infections in patients on C.I.C. While TURP may be of value in establishing reflex voiding and a balanced bladder, it should not be done empirically in case the obstruction is due to sphincteric dyssynergia and the bladder-neck should not be resected. Temporary suprapubic cystostomy would be indicated for such complications as severe urethritis or epididymitis. A urethral catheter would be used briefly to manage a temporary inability to self-catheterize but is not a good long-term management option for this patient.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 29, pp 953-1006.

A ten-year-old boy is receiving cefotetan for an abdominal infection. He has chronic renal insufficiency secondary to reflux nephropathy with a serum creatinine of 3.0 mg/dl. Appropriate management is to:

A. discontinue cefotetan.

B. switch to cefoperazone.

C. administer Vitamin K.

D. decrease cefotetan dose by 50%.

E. increase cefotetan dosing interval.

A ten-year-old boy is receiving cefotetan for an abdominal infection. He has chronic renal insufficiency secondary to reflux nephropathy with a serum creatinine of 3.0 mg/dl. Appropriate management is to:

C: "administer Vitamin K." is correct.

Cefotetan is metabolized by the liver. No dosage adjustment is needed in patients with renal insufficiency. This cephalosporin can exert a warfarin like effect prolonging the prothrombin time and has the potential to cause hypoprothrombinemia. This complication is a particular risk for patients with renal or liver disease and administration of Vitamin K can circumvent this side effect.

PHYSICIAN'S DESK REFERENCE. Montvale, NJ, Medical Economics Corp, 1995; pp 2433-2436.

A 42-year-old man had a right radical nephrectomy two years ago for a Stage T3aNoMx renal cell carcinoma. He now has right hip pain. Bone scan shows intense uptake in the right hip area and plain films of the right femur show a 3.5 cm lytic lesion. The next step is:

A external beam radiation to the femur.

B strontium-89.

C internal fixation of the femur.

D pain management.

E systemic immunotherapy.

A 42-year-old man had a right radical nephrectomy two years ago for a Stage T3aNoMx renal cell carcinoma. He now has right hip pain. Bone scan shows intense uptake in the right hip area and plain films of the right femur show a 3.5 cm lytic lesion. The next step is:

C: "internal fixation of the femur." is correct.

Approximately 50% of patients with multi-organ metastases from renal cell carcinoma exhibit evidence of skeletal involvement. It has been estimated that between 15% and 30% of such skeletal lesions are solitary. Eighty percent of skeletal metastases occur in the axial skeleton, thoracic/lumbar spine, and pelvis. When long bones are involved, only the proximal portions are characteristic targets for metastatic disease. Surgical treatment of bony metastases is indicated for weight-bearing bones with lytic lesions greater than 3 cm. Internal stabilization or replacement of the destroyed periarticular segment often results in significant pain relief and tremendously improves the patient's quality of life.

Koslowski JM: Management of distant solitary recurrence in the patient with renal cancer. UROL CLIN N AM 1994;21:601-624.

Lifeso RM, McGrath BE: Orthopaedic management of metastases in genitourinary cancer, in Raghavan D, Scher HI, Leibel SA, Lange PH (eds): PRINCIPLES AND PRACTICE OF GENITOURINARY ONCOLOGY. Philadelphia, Lippincott-Raven Publishers, 1997, chap 12, pp 146-147.

A 44-year-old man with invasive bladder cancer undergoes a radical cystectomy and ileal conduit urinary diversion. An ileocutaneous fistula develops on the seventh postoperative day and is managed by nasogastric suction and total parenteral nutrition. He tolerates the total parenteral nutrition well but two weeks later has a sudden onset of hyperglycemia. The most common cause for this event is:

A subclinical diabetes.

B insulin resistance.

C hepatic insufficiency.

D adrenal insufficiency.

E infection.

A 44-year-old man with invasive bladder cancer undergoes a radical cystectomy and ileal conduit urinary diversion. An ileocutaneous fistula develops on the seventh postoperative day and is managed by nasogastric suction and total parenteral nutrition. He tolerates the total parenteral nutrition well but two weeks later has a sudden onset of hyperglycemia. The most common cause for this event is:

E: "infection." is correct.

A septic focus is the most common cause for the acute onset of hyperglycemia in a patient previously tolerating total parenteral nutrition. The hyperglycemia should be managed by subcutaneous insulin or by adding insulin to the parenteral nutrition solution; in addition, investigations should be initiated to identify a site of infection.

Benson MC, Olsson C: Continent urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7, Philadelphia, WB Saunders Co, 1998, chap 103, pp 3190-3246.

Which of the following is most frequently associated with renal angiomyolipoma:

A congenital aniridia.

B tuberous sclerosis.

C von Hippel-Lindau disease.

D neurofibromatosis.

E MEN II.

Which of the following is most frequently associated with renal angiomyolipoma:

B: "tuberous sclerosis." is correct.

Angiomyolipomas occur in between 40-80% of patients with tuberous sclerosis. They are often detected incidentally in patients undergoing CT scans or ultrasounds but may present with sudden pain and hypotension due to hemorrhage.

Belldegrun A, deKernion JB: Renal tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 76, pp 2283-2326.

A 22-year-old man involved in an automobile accident is evaluated for multi-system trauma. A peritoneal tap is negative and his vital signs are stable. A contrast-enhanced CT scan shows complete enhancement of both kidneys, a 2 cm laceration in the lower pole of the left kidney, and a 4 cm x 5 cm left perinephric hematoma. A 3 cm splenic laceration that does not extend to the hilum is also seen. His vital signs remain stable after the transfusion of one unit of packed cells, and he is managed nonoperatively. Ten days later, he develops acute abdominal pain. On physical examination, he is diaphoretic and has a rigid abdomen. His temperature is 101 degrees Fahrenheit, pulse 120/min, and blood pressure is 90/70 mm Hg. This clinical condition is most likely due to:

A delayed sepsis.

B persistent urinary extravasation.

C secondary renal hemorrhage.

D delayed splenic hemorrhage.

E secondary hypertension.

A 22-year-old man involved in an automobile accident is evaluated for multi-system trauma. A peritoneal tap is negative and his vital signs are stable. A contrast-enhanced CT scan shows complete enhancement of both kidneys, a 2 cm laceration in the lower pole of the left kidney, and a 4 cm x 5 cm left perinephric hematoma. A 3 cm splenic laceration that does not extend to the hilum is also seen. His vital signs remain stable after the transfusion of one unit of packed cells, and he is managed nonoperatively. Ten days later, he develops acute abdominal pain. On physical examination, he is diaphoretic and has a rigid abdomen. His temperature is 101 degrees Fahrenheit, pulse 120/min, and

D: "delayed splenic hemorrhage." is correct.

Associated organ injury is common in patients with renal trauma. Nonrenal trauma accounts for the majority of the morbidity and mortality which occurs in such patients. As in the case described, CT allows staging of renal injury and detection of associated organ injury. Nonoperative management of both splenic and renal injury is possible in selected patients with renal injuries associated with limited extravasation and bleeding. Development of delayed bleeding, infection, or hypertension (related to the renal injury) is unlikely. Those cases where there are nonviable renal segments are more likely to require delayed laparotomy. Although splenic lacerations may be managed nonoperatively, up to 40% of those with Type II injuries (splenic laceration not extending to hilum) may require operative intervention. Although either injury described in the case presented may require delayed laparotomy, the splenic injury is more likely to require it.

Lucas CE: Splenic trauma. ANN SUR 1991;213:98-112.

Husman DA, Morris JS: Attempted nonoperative management of blunt renal lacerations extending through the corticomedullary junction: The short-term and long-term sequelae. J UROL 1990;143:682-684.

In addition to hypercalciuria, renal tubular acidosis is associated with:

A hyperuricosuria.

B abnormal quantities of urinary matrix.

C reduction in urinary citrate.

D increase in urinary citrate.

E hypermagnesemia.

In addition to hypercalciuria, renal tubular acidosis is associated with:

C: "reduction in urinary citrate." is correct.

Patients with renal tubular acidosis (RTA) may present with hyperchloremic metabolic acidosis if they have the complete form of RTA. More often, patients who have calcium phosphate stones may have incomplete renal tubular acidosis with normal serum electrolytes, yet they will still be acidotic. This chronic metabolic acidosis will cause a significant reduction in urinary citrate production, with patients often having urinary citrate values less than 50 mg/day. Alkalization is the treatment of choice for patients with renal tubular acidosis. Potassium alkali, usually in the form of potassium citrate, has been shown to inhibit recurrent stone formation in patients with RTA.

Osther PJ, Bollerslev J, Hansen AB, Engel K, Kildeberg P: Pathophysiology of incomplete renal tubular acidosis in recurrent renal stone formers: Evidence of disturbed calcium, bone, and citrate metabolism. UROLOGICAL RESEARCH 1993;21:169-173.

A 35-year-old man under epidural anesthesia has a sustained erection that prevents ureteroscopy. He is best managed by:

A intracorporal phenylephrine.

B amyl nitrate inhalation.

C pudendal nerve block.

D general anesthesia.

E verapamil.

A 35-year-old man under epidural anesthesia has a sustained erection that prevents ureteroscopy. He is best managed by:

A: "intracorporal phenylephrine." is correct.

Intracorporeal injection of phenylephrine is the treatment of choice. The depth of anesthesia is unrelated to the response; antihypertensive agents are not effective; and vasodilators are dangerous in this circumstance. Drugs that reduce the erectile state during anesthesia may also be used clinically to treat priapism.

Dittrich A, Albrecht K, Bar-Moshe O, Vandendris M: Treatment of pharmacological priapism with phenylephrine. J UROL 1991;146:323.

The symptom complex of orthostatic hypotension, anhydrosis, detrusor hyperreflexia, denervation of the external sphincter, and a bladder neck that is open at rest best describes patients with:

A autonomic dysreflexia.

B diabetic neuropathy.

C multiple sclerosis.

D Shy-Drager syndrome.

E Parkinson's disease.

The symptom complex of orthostatic hypotension, anhydrosis, detrusor hyperreflexia, denervation of the external sphincter, and a bladder neck that is open at rest best describes patients with:

D: "Shy-Drager syndrome." is correct.

The symptom complex described above describes the Shy-Drager syndrome. This degenerative disorder results in atrophy of areas in the cerebellum, brain stem, peripheral autonomic ganglia, and thoracolumbar preganglionic sympathetic neurons. Patients with Shy-Drager syndrome usually have Parkinsonian symptoms coupled with orthostatic hypotension and anhidrosis. Because of disruption of the sympathetic innervation to the lower urinary tract, the bladder neck is open at rest. None of the other answers fit with the symptom complex described.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract and its treatment, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, pp 957-958.

A 30-year-old man with infertility has distal shaft hypospadias. Semen analysis reveals an ejaculate volume of 2.0 ml, 25 million sperm/ml, 60% motility, and normal morphology. The best next test is:

A hamster egg penetration assay.

B antisperm antibody testing.

C post-coital testing.

D serum FSH and testosterone.

E transrectal ultrasound.

A 30-year-old man with infertility has distal shaft hypospadias. Semen analysis reveals an ejaculate volume of 2.0 ml, 25 million sperm/ml, 60% motility, and normal morphology. The best next test is:

C: "post-coital testing." is correct.

The patient's evaluation is completely normal except for the presence of distal hypospadias. Endocrine testing is not likely to be helpful since his semen analysis is within normal limits. Sperm function testing and antisperm antibody testing are unlikely to be contributory either. Post-coital testing is indicated to determine whether the sperm are being deposited in the cervix. Insemination is indicated only if the post-coital test is abnormal.

Shaban SF: Treatment of abnormalities of ejaculation, in Lipshultz LI, Howards SS (eds): Infertility in the Male. St. Louis, Mosby Year Book, 1991, p 417.

Sigman M, Howards SS: Male infertility, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, pp 1287-1330.

A 45-year-old man with congestive heart failure develops epididymitis. His current medications include digoxin, enalapril and amiodarone. The next best step in management is:

A. administer ciprofloxacin.

B. discontinue enalapril.

C. discontinue amiodarone.

D. discontinue digoxin.

E. administer doxycycline.

A 45-year-old man with congestive heart failure develops epididymitis. His current medications include digoxin, enalapril and amiodarone. The next best step in management is:

C: "discontinue amiodarone." is correct.

The incidence of epididymitis during amiodarone therapy is reported to be as high as 11%. Epididymitis usually resolves with discontinuation of this medication and antibiotic therapy is not thought to be necessary. This condition has been associated with high serum or epididymal levels of amiodarone or its metabolites. The development of anti-amiodarone antibodies may play a role in the pathophysiology of this disorder. Lymphocytic infiltration and fibrosis of the epididymis are seen on histologic analysis.

Gabal-Shehab LL, Monga M: Recurrent bilateral amiodarone induced epididymitis. J UROL 1999;161:921.

A 53-year-old man with urgency, nocturia, and hesitancy failed terazosin treatment (secondary to orthostatic hypotension) for his lower urinary tract symptoms. His postvoid residual urine is 250 ml and his Qmax is 10 ml/sec. He has recently remarried and wishes to impregnate his spouse in the near future. The best next step is:

A tamsulosin.

B oxybutynin.

C TUMT.

D TUIP.

E TURP.

A 53-year-old man with urgency, nocturia, and hesitancy failed terazosin treatment (secondary to orthostatic hypotension) for his lower urinary tract symptoms. His postvoid residual urine is 250 ml and his Qmax is 10 ml/sec. He has recently remarried and wishes to impregnate his spouse in the near future. The best next step is:

A: "tamsulosin." is correct.

All the above mentioned choices have a risk of impacting antegrade ejaculation or increasing his postvoid residual urine. Of the choices, tamsulosin offers a relatively high, but reversible risk of retrograde ejaculation. Anti-cholinergics risk worsening of his postvoid residual urine. In this scenario, tamsulosin offers treatment advantages that the others do not.

Lepor H: Natural history, evaluation and nonsurgical management of benign prostatic hyperplasia, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 47, pp 1453-1478.

Testosterone production during differentiation of the urethra is under the regulation of:

A fetal LH.

B maternal LH.

C maternal hCG.

D fetal GnRH.

E fetal FSH.

Testosterone production during differentiation of the urethra is under the regulation of:

C: "maternal hCG." is correct.

Fetal Leydig cell function during the first trimester of pregnancy is under maternal hCG regulation. The fetal pituitary does not begin to secrete gonadotropins until the second trimester of gestation. Therefore, if there is a problem with fetal hypothalamic-pituitary function, this does not become evident until the second trimester of gestation. The most common cause of micropenis is probably fetal hypothalamic-pituitary dysfunction.

Elder JS: Congenital anomalies of the genitalia, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 69, pp 2123-2125.

The angiographic evaluation of a potential living donor is illustrated (see figures). Appropriate management of this potential donor is:

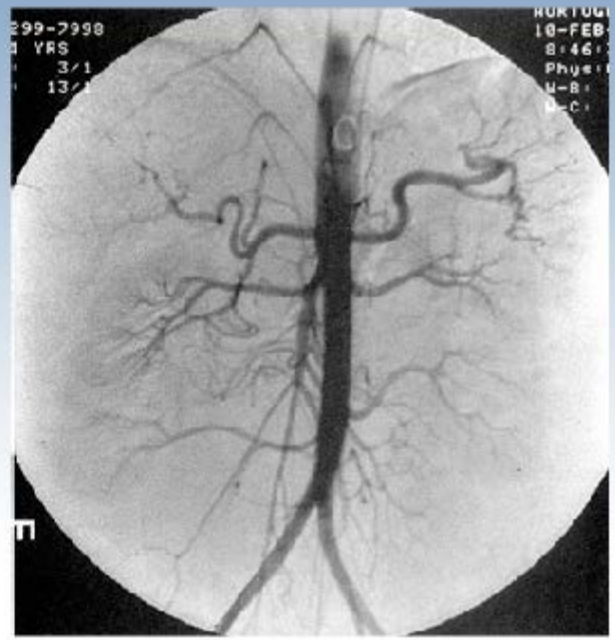
A exclude from donation.

B donor nephrectomy with ligation of upper pole artery.

C donor nephrectomy with ligation of lower pole artery.

D donor nephrectomy with extracorporeal arterial repair.

E donor nephrectomy with aortic (Carrel) patch.



Click on images to enlarge or click the letter response to move on to the next question.

The angiographic evaluation of a potential living donor is illustrated (see figures). Appropriate management of this potential donor is:

D: "donor nephrectomy with extracorporeal arterial repair." is correct.

This donor has two renal arteries of approximately equal caliber on each side. This does not exclude the patient from donation. However, "bench repair" will be required at the time of transplantation. "All things being equal" , the left side is chosen for donation because of the longer length of renal vein. In this case, there are two arteries on both sides so that in fact "all things are equal". Standard management would be a left donor nephrectomy with either side to side or end to side "bench repair" at the time of transplantation.

Barry JM: Renal transplantation, in Walsh PC, Retik AB, Stamey TA, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 14, pp 505-528.

The angiographic evaluation of a potential living donor is illustrated (see figures). Appropriate management of this potential donor is:

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Barry JM: Renal transplantation, in Walsh PC, Retik AB, Stamey TA, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 14, pp 505-528.

A 52-year-old man develops abrupt and severe hypertension. He is poorly controlled with an ACE inhibitor, calcium channel blocker, diuretic, and minoxidil. None of these medications can be safely withheld. His creatinine is 1.3 mg/dl. The best way to evaluate for renovascular hypertension is:

A captopril plasma renin activity test.

B unstimulated plasma renin activity test.

C captopril renography.

D duplex ultrasound.

E Lasix renography.

A 52-year-old man develops abrupt and severe hypertension. He is poorly controlled with an ACE inhibitor, calcium channel blocker, diuretic, and minoxidil. None of these medications can be safely withheld. His creatinine is 1.3 mg/dl. The best way to evaluate for renovascular hypertension is:

D: "duplex ultrasound." is correct.

This 52-year-old man is at risk for renovascular hypertension. Of the captopril modulated testing (PRA and captopril renogram) the renogram is a better test than peripheral PRA. Critical to the performance of these tests is appropriate patient preparation. Ideally, patients should be off all medications for two weeks. This is usually not possible clinically. It is apparent that ACE inhibitors will reduce the sensitivity of testing. Other antihypertensives can be used up to the morning of testing. In this setting duplex ultrasound will give anatomic information on the renal arteries sufficient to determine the need for angiography.

Setaro JF, Saddler MC, Chen CC, et al: Simplified captopril renography in the diagnosis and treatment of renal artery stenosis. HYPERTENSION 1991;18:289-298.

The neural tissue(s) most likely to be damaged during a dorsal lumbotomy incision is (are):

A iliohypogastric and ilioinguinal.

B subcostal.

C sympathetic.

D celiac ganglion.

E genitofemoral.

The neural tissue(s) most likely to be damaged during a dorsal lumbotomy incision is (are):

A: "iliohypogastric and ilioinguinal." is correct.

The iliohypogastric and ilioinguinal nerves lie posterior to the kidney and must be avoided in a posterior approach to the kidney. The other mentioned nerves are not in the surgical field.

Kabalin JN: Anatomy of retroperitoneum and kidney, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 2, pp 49-62.

Clear fluid with a high amylase content begins to drain from a suction catheter two days after difficult excision of a large left adrenal tumor. There is no fever and minimal leukocytosis. Two weeks later, the drainage remains copious but the overall clinical condition is stable. Optimal management is:

A nasogastric suction and parenteral hyperalimentation.

B endoscopic intubation of the pancreatic duct.

C continued observation.

D distal pancreatectomy.

E somatostatin.

Clear fluid with a high amylase content begins to drain from a suction catheter two days after difficult excision of a large left adrenal tumor. There is no fever and minimal leukocytosis. Two weeks later, the drainage remains copious but the overall clinical condition is stable. Optimal management is:

A: "nasogastric suction and parenteral hyperalimentation." is correct.

In this case the clinical findings are most consistent with a pancreatic fistula resulting from unrecognized intraoperative injury to the tail of the pancreas. These fistulas usually close with conservative management.

Vaughan ED, Blumenfeld JD: The adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed. 7, Philadelphia, WB Saunders Co, 1998, chap 96, pp 2915-2972.

The nerve that may be easily trapped by the tacking sutures during a psoas hitch procedure is the:

A genitofemoral.

B ilioinguinal.

C iliohypogastric.

D femoral.

E lateral femoral cutaneous.

The nerve that may be easily trapped by the tacking sutures during a psoas hitch procedure is the:

A: "genitofemoral." is correct.

The genitofemoral nerve penetrates the body of the psoas muscle at about L-3/L-4 where it travels caudally along its surface and is vulnerable to suture injury. The other nerves are all lateral or dorsal to the psoas muscle and removed from the operative site.

Kabalin JN: Surgical anatomy of the retroperitoneum, kidneys, and ureters, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 2, p 60.

A 34-year-old man has a large abdominal mass, a palpable right testicular mass, and a mediastinal mass on chest x-ray. Serum alpha-fetoprotein is normal, and beta-hCG is slightly elevated. A right radical orchiectomy reveals pure seminoma. The next step is:

A. VP-16 (etoposide), platinum, and bleomycin chemotherapy.

B. abdominal and mediastinal radiation.

C. doxorubicin and cyclophosphamide chemotherapy.

D. retroperitoneal lymphadenectomy and mediastinal radiation.

E. retroperitoneal tumor biopsy.

A 34-year-old man has a large abdominal mass, a palpable right testicular mass, and a mediastinal mass on chest x-ray. Serum alpha-fetoprotein is normal, and beta-hCG is slightly elevated. A right radical orchiectomy reveals pure seminoma. The next step is:

A: "VP-16 (etoposide), platinum, and bleomycin chemotherapy." is correct.

This patient has stage III seminoma and should be treated with platinum-based chemotherapy. Radiation therapy alone has been demonstrated to have poor survivals compared to cis-platinum based chemotherapeutic regimens. The survival with stage IIb or greater with radiation therapy alone is on the order of 50%. With cis-platinum based chemotherapeutic protocols, however, survivals exceed 90% even for stage III disease. In addition, radiation therapy limits the amount of chemotherapy given by affecting marrow reserves.

Richie JP: Neoplasms of the testis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 78, pp 2411-2452.

A 45-year-old hypertensive man with a family history of renal failure was noted to have bilaterally enlarged cystic kidneys, and hepatic and pancreatic cysts during an abdominal ultrasonographic examination for abdominal/flank pain and fever. He also complained of marked dysuria. Urine cultures were obtained and he was admitted with a presumptive diagnosis of pyelonephritis. While awaiting culture results the best initial antibiotic is:

A gentamicin.

B ampicillin.

C cephalexin.

D trimethoprim.

E nitrofurantoin.

A 45-year-old hypertensive man with a family history of renal failure was noted to have bilaterally enlarged cystic kidneys, and hepatic and pancreatic cysts during an abdominal ultrasonographic examination for abdominal/flank pain and fever. He also complained of marked dysuria. Urine cultures were obtained and he was admitted with a presumptive diagnosis of pyelonephritis. While awaiting culture results the best initial antibiotic is:

D: "trimethoprim." is correct.

Autosomal dominant polycystic kidney disease is a systemic disease with varied renal pathology including renal cysts, calculi, infection, hemorrhage and eventual renal insufficiency. Associated gastrointestinal pathology includes hepatic and pancreatic cysts. These patients also have an increased incidence of cerebral artery aneurysms. The cysts eventually become isolated structures and standard empiric antibiotics for pyelonephritis penetrate cysts poorly. Lipid soluble antibiotics are required and include trimethoprim, tetracycline, doxycycline, ciprofloxacin, norfloxacin, and chloramphenicol. Ampicillin, aminoglycosides, cephalosporins, and nitrofurantoin are not lipid soluble and thus are poor choices.

Gurkowski LJ, Grantham, JJ: Autosomal dominant polycystic kidney disease. AUA UPDATE SERIES 1992, vol XI, lesson 30, pp 234-239.

During a gynecological procedure, the most common cause for a ureteral injury is:

A uncontrolled bleeding from a uterine artery.

B ureteral entrapment when occluding the ovarian pedicle.

C ureteral damage during incision of the broad ligament.

D mistaking the ureter for the round ligament.

E ureteral damage while encircling and occluding the ovarian pedicle.

During a gynecological procedure, the most common cause for a ureteral injury is:

A: "uncontrolled bleeding from a uterine artery." is correct.

In 1% of gynecological procedures, a ureteral injury occurs. This most often results from failure to identify the ureter when attempting to obtain hemostasis in the field. Provided there is a clear surgical field, ureteral injury due to confusing it with another structure or during occlusion of the uterine or ovarian vessels is distinctly unusual.

Mann WJ: Intentional and unintentional ureteral surgical treatment in gynecological procedures. SUR GYN OBST 1992;172:453.

Neuman M, Eidelman A, Langer R, et al: Iatrogenic injuries to the ureter during gynecologic and obstetric operations. SUR GYN OBST 1992;173:268.

A 48-year-old man undergoes transurethral resection of a 34 gm, superficial, transitional cell bladder tumor. At the end of the resection a small bladder perforation is noted, and a large catheter is left to closed drainage. Five days postoperatively, he receives 60 mg intravesical BCG. That evening he has mild hypotension and a fever to 104 degrees Fahrenheit. Treatment should include steroids and:

A isoniazid.

B rifampin.

C cycloserine.

D isoniazid and rifampin.

E isoniazid, rifampin, and cycloserine.

A 48-year-old man undergoes transurethral resection of a 34 gm, superficial, transitional cell bladder tumor. At the end of the resection a small bladder perforation is noted, and a large catheter is left to closed drainage. Five days postoperatively, he receives 60 mg intravesical BCG. That evening he has mild hypotension and a fever to 104 degrees Fahrenheit. Treatment should include steroids and:

E: "isoniazid, rifampin, and cycloserine." is correct.

The history of a large tumor resection, bladder perforation, and rapid symptoms of sepsis following intravesical BCG therapy all suggest systemic drug absorption and infection. Anaphylaxis and death may occur in rare cases. Early triple drug tuberculosis therapy with isoniazid, rifampin, and cycloserine is indicated for severe BCG infections. Milder infections may be treated with the first two drugs alone.

Messing EM, Catalona WJ: Urothelial tumors of the urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 77, pp 2329-2382.

Renal blood flow is autoregulated by:

A sympathetic nerves.

B glomerular filtration rate.

C cardiac output.

D parasympathetic nerves.

E afferent arteriolar resistance.

Renal blood flow is autoregulated by:

E: "afferent arteriolar resistance." is correct.

Autoregulation of glomerular filtration rate and renal blood flow occurs primarily through variations in afferent arteriolar resistance. Micropuncture studies support the hypothesis that changes in rate of fluid flow in the distal tubule elicit these changes in glomerular arteriolar resistance, a phenomenon known as distal tubuloglomerular feedback. Renal autoregulation is responsible for the relatively small changes in renal blood flow and glomerular filtration rates over wide ranges of perfusion pressures. This autoregulation is present in both innervated and denervated kidneys.

Bloomingfeld JD, Vaughan ED Jr: Renal physiology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, pp 263-313.

In hypogonadal men, the agent which improves the results of nocturnal penile tumescence testing but does not affect erection in response to erotic films is:

A testosterone.

B L-Dopa.

C sildenafil.

D yohimbine.

E bromocriptine.

In hypogonadal men, the agent which improves the results of nocturnal penile tumescence testing but does not affect erection in response to erotic films is:

A: "testosterone." is correct.

Androgen replacement in hypogonadal men does increase sexual activity and interest. The relationship between androgen replacement and penile erection is not so straightforward. When evaluated with nocturnal penile tumescence testing, hypogonadal men demonstrate decreased erectile activity and this abnormality is corrected with testosterone replacement. Laboratory tested erectile responses to erotic films, however, are usually normal in hypogonadal men. These observations are consistent with the conclusion that the major effect of testosterone therapy on sexual function is to enhance libido and not to directly improve penile erection in a sexual setting. The answer to the question is, therefore, testosterone. None of the other drugs are known to exert these effects.

Lue TF, Broderick G: Evaluation and nonsurgical management of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 39, p 1207.

A 23-year-old man undergoes local excision of a paratesticular mass through a scrotal incision. Pathology reveals an adenomatoid tumor. The best next step is:

A observation.

B serum AFP and hCG determination.

C abdominal and pelvic CT scan.

D inguinal orchiectomy.

E inguinal orchiectomy and partial scrotectomy.

A 23-year-old man undergoes local excision of a paratesticular mass through a scrotal incision. Pathology reveals an adenomatoid tumor. The best next step is:

A: "observation." is correct.

Adenomatoid tumors are innocuous lesions of the testis and epididymis which generally follow a benign course. Local excision alone is adequate therapy.

Tammela TL, Karttunen TJ, Makarainen JP, et al: Intrascrotal adenomatoid tumor. J UROL 1991;146:61-65.

The mechanism of action of aminoglutethimide for the treatment of metastatic adenocarcinoma of the prostate gland is:

A inhibition of adrenal steroid synthesis.

B inhibition of 5-alpha-reductase.

C competition for LH-RH receptor sites.

D competition for testosterone receptor sites.

E suppression of LH.

The mechanism of action of aminoglutethimide for the treatment of metastatic adenocarcinoma of the prostate gland is:

A: "inhibition of adrenal steroid synthesis." is correct.

Aminoglutethimide inhibits the conversion of cholesterol to pregnenolone, the first step in steroid biosynthesis. As a result, the drug causes inhibition of cortisol and adrenal androgen production. This latter effect of aminoglutethimide is used in the treatment of patients with prostate cancer who have failed primary hormonal therapy. Its efficacy is controversial. Patients given this drug must also be given corticoid replacement.

Vaughan ED Jr, Bloomingfeld JD: The adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, pp 2915-2972

Routine staining of a bone biopsy from a 60-year-old man with diffuse metastases reveals poorly differentiated adenocarcinoma. The immunohistochemical stain most likely to determine whether the tumor is of prostatic origin is:

A cytokeratin.

B prostate specific membrane antigen (PSMA).

C prostatic acid phosphatase.

D prostate specific antigen (PSA).

E alkaline phosphatase.

Routine staining of a bone biopsy from a 60-year-old man with diffuse metastases reveals poorly differentiated adenocarcinoma. The immunohistochemical stain most likely to determine whether the tumor is of prostatic origin is:

B: "prostate specific membrane antigen (PSMA)." is correct.

In a study of 184 radical prostatectomies from previously untreated patients, Bostwick et al found intense cytoplasmic epithelial immunoreactivity for PSM (prostate specific membrane antigen) in every prostate cancer. The most extensive and intense staining for PSM was observed in high grade carcinoma (Gleason primary pattern 4 or 5) with immunoreactivity in virtually every cell. Studies have shown that individual cells in poorly differentiated carcinoma produce less PSA than cells in well differentiated and moderately differentiated carcinoma and also normal prostate epithelium.

Bostwick DG, Pacelli A, Blute M, et al: Prostate specific membrane antigen expression in prostatic intraepithelial neoplasia and adenocarcinoma. CANCER 1998;82(11):2256-2261.

A 30-year-old man with membranous nephropathy has generalized anasarca. The serum creatinine is 1.7 mg/dl. A 24-hour urine contains 6.8 gm protein. Other likely associated findings include:

A hypoproteinemia, hypocholesterolemia.

B hypercholesterolemia, increased total body sodium.

C hypovolemia, reduced total body sodium.

D hyponatremia, hyperkalemia.

E hypovolemia, metabolic acidosis.

A 30-year-old man with membranous nephropathy has generalized anasarca. The serum creatinine is 1.7 mg/dl. A 24-hour urine contains 6.8 gm protein. Other likely associated findings include:

B: "hypercholesterolemia, increased total body sodium." is correct.

This patient has nephrotic syndrome with generalized anasarca. In this disorder, increased permeability of the glomerular capillary basement membrane leads to leakage of plasma protein into the glomerular filtrate and urine. The resulting hypoproteinemia causes a drop in circulatory volume. This leads to decreased renal perfusion and activation of the renin-angiotensin system with subsequent release of aldosterone. Sodium is retained and the temporary hyperosmolality increases ADH secretion. Total body sodium and water increase, but the serum sodium does not usually change because the increased fluid goes into the extracellular space, causing edema. The secondary aldosteronism may also cause an increased bicarbonate, alkalosis, and hypokalemia. The nephrotic syndrome is also characterized by an increase in plasma lipid concentration which includes cholesterol, phospholipids, and triglycerides.

Edelstein CL, Alkhunaizi A, Yaqoob MM, et al: Etiology, pathogenesis, and management of renal failure, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 8, pp 328-341.

A 50-year-old woman has irritative and obstructive voiding symptoms and urgency incontinence. Videourodynamics demonstrates normal bladder capacity, peak flow of 6 ml/sec, peak detrusor voiding pressure of 45 cm H_2O, residual urine of 150 ml, a silent external sphincter, minimal opening of the bladder neck during voiding, and no cystocele. Cystoscopy is normal. The next best step is:

A oxybutynin.

B biofeedback.

C urethral dilation.

D terazosin.

E transurethral incision of bladder neck.

A 50-year-old woman has irritative and obstructive voiding symptoms and urgency incontinence. Videourodynamics demonstrates normal bladder capacity, peak flow of 6 ml/sec, peak detrusor voiding pressure of 45 cm H_2O, residual urine of 150 ml, a silent external sphincter, minimal opening of the bladder neck during voiding, and no cystocele. Cystoscopy is normal. The next best step is:

D: "terazosin." is correct.

This patient has urodynamic findings consistent with functional bladder neck obstruction. Approximately 50% of these patients respond to alpha-blocker therapy.

Kumar A, Mandhani A, Gogoi S, Srivastava A: Management of functional bladder neck obstruction in women: Use of alpha-blockers and pediatric resectoscope for bladder neck incision. J UROL 1999;162:2061-2065.

Stage for stage, renal cell carcinoma has the poorest prognosis if the histology is predominantly:

A clear cell.

B papillary.

C sarcomatoid.

D chromophobe.

E mixed clear and granular cell.

Stage for stage, renal cell carcinoma has the poorest prognosis if the histology is predominantly:

C: "sarcomatoid." is correct.

Sarcomatoid renal tumors are unusual but are associated generally with a poor prognosis. There is no convincing evidence that any of the other histologies commonly seen with renal cancer are of strong prognostic significance.

Belldegrun A, deKernion JB: Renal tumors, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 76, pp 2283-2326.

In a patient with an absent right kidney and a left pelvic kidney, the right adrenal is:

A absent and the left is adjacent to the upper pole of the kidney.

B absent and the left is in the normal anatomic position.

C in the normal anatomic position and the left is adjacent to the upper pole of the kidney.

D in the normal anatomic position and the left is in the normal anatomic position.

E in the normal anatomic position and the left is absent.

In a patient with an absent right kidney and a left pelvic kidney, the right adrenal is:

D: "in the normal anatomic position and the left is in the normal anatomic position." is correct.

The adrenal gland is in the normal anatomic position, no matter whether the kidney is absent or ectopic.

Bauer SB: Anomalies of the kidney and ureteropelvic junction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 58, pp 1708-1739.

A 60-year-old man with retinitis pigmentosa and erectile dysfunction fails to get an erection with intracorporal and intraurethral PGE-1. His serum testosterone level is 400 ng/dl and color Doppler peak flow velocity of the cavernous arteries is 16 cm/sec after 20 mcg of PGE-1. The best next step in treatment of his erectile dysfunction is:

A counseling.

B sildenafil.

C insertion of penile prosthesis.

D testosterone supplementation.

E yohimbine.

A 60-year-old man with retinitis pigmentosa and erectile dysfunction fails to get an erection with intracorporal and intraurethral PGE-1. His serum testosterone level is 400 ng/dl and color Doppler peak flow velocity of the cavernous arteries is 16 cm/sec after 20 mcg of PGE-1. The best next step in treatment of his erectile dysfunction is:

C: "insertion of penile prosthesis." is correct.

In patients with inherited retinal disorders such as retinitis pigmentosa, sildenafil use is contraindicated. Sildenafil downregulates PDE-VI expression in the retina and exacerbates visual disturbances. Testosterone supplementation is only indicated in the presence of documented hypogonadism. Yohimbine is not a useful treatment. In the presence of documented arterial insufficiency, a penile prosthesis is the best treatment.

Goldstein I, Lue TF, Padma-Nathan H, Rosen RC, Steers WD, Wicker PA: Oral sildenafil in the treatment of erectile dysfunction. NEJM 1998;14;338(20):1397-1404.

At the time of diagnosis of muscle invasive transitional cell carcinoma of the bladder, most patients:

A have had previous urinary infections.

B have never had a previous bladder tumor.

C have been exposed to known occupational/environmental carcinogens.

D are active smokers.

E are under age 65.

At the time of diagnosis of muscle invasive transitional cell carcinoma of the bladder, most patients:

B: "have never had a previous bladder tumor." is correct.

Almost all patients who die from TCC of the bladder have prior or concurrent muscle invasive tumors. Over 84% of patients with muscle invasive disease have not had prior bladder tumors. Hence, treatment and surveillance strategies for patients with superficial tumors is not likely to reduce mortality from this disease. Patients with occupational exposure histories or prior infections have higher risk for developing bladder cancer but do not account for more than 20% of cases. In the US, the majority of bladder tumor patients have histories of smoking cigarettes, and more than half are former smokers.

Messing EM, Catalona WJ: Urothelial tumors of the urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 77, pp 2329-2382.

A 58-year-old man has a distal ureteral stricture following ureteroscopic stone extraction. The primary factor that predicts the success of balloon dilation is:

A length of stricture.

B length of time since injury.

C associated infection.

D proximity to ureterovesical junction.

E presence of calculus disease.

A 58-year-old man has a distal ureteral stricture following ureteroscopic stone extraction. The primary factor that predicts the success of balloon dilation is:

A: "length of stricture." is correct.

Although length of time since injury, associated infection, and the proximity to the ureterovesical junction can affect prognosis, the primary determinant is length of the stricture.

Goldfischer ER, Gerber GS: Endoscopic management of ureteral strictures. J UROL 1997:157(3):770-775.

A one-week-old boy is observed to void in small amounts with only 5 to 10 minutes between several voiding episodes. He is otherwise apparently well. Appropriate evaluation is:

A bladder and kidney ultrasound.

B VCUG.

C radionuclide cystogram.

D observation.

E retrograde urethrogram.

A one-week-old boy is observed to void in small amounts with only 5 to 10 minutes between several voiding episodes. He is otherwise apparently well. Appropriate evaluation is:

D: "observation." is correct.

Normal infantile voiding patterns often include frequent small volume, incomplete voids. These have been documented in normal children using continuous ambulatory urodynamics. In the absence of other findings, no specific evaluation should be undertaken.

Yeung CK, Godley ML, Ho CK, et al: Some new insights into bladder function in infancy. BRI J UROL 1995;76:235-240.

Type V phosphodiesterase inhibitors selectively relax smooth muscle of the:

A prostate.

B penis.

C detrusor.

D urethra.

E ureter.

Type V phosphodiesterase inhibitors selectively relax smooth muscle of the:

B: "penis." is correct.

Phosphodiesterase (PDE) inhibitors were initially developed for the treatment of heart disease. The PDE-5 are predominant in the corporal smooth muscle of the penis and are inhibited selectively by sildenafil citrate. The smooth muscle of the vascular system and platelets are additional locations of PDE-5.

Goldstein I, Lue TF, Padma-Nathan H, Rosen RC, Steers WD, Wicker PA: Oral sildenafil in the treatment of erectile dysfunction. NEJM 1998;338(20):1397-1404.

The most important development in the prevention of catheter-associated urinary tract infections in hospitalized patients is the:

A use of silicone-coated catheters.

B addition of Betadine.

C institution of daily antibacterial meatal care.

D use of oral antibiotics.

E closed catheter drainage system.

The most important development in the prevention of catheter-associated urinary tract infections in hospitalized patients is the:

E: "closed catheter drainage system." is correct.

Without question, the most important development in the prevention of catheter-associated UTI's in hospitalized patients has been the closed catheter system. When inserted and maintained properly, the entire system, from the aseptically introduced catheter tip in the bladder to the urinary drainage bag, is closed to the outside environment. If the integrity of the system is disrupted, however, the risk of infection increases. An "open" drainage system assures about a 100% incidence of catheter-associated UTI within three to four days, whereas a "closed" drainage system reduces the rate of infection to about 5% per day, with the median onset for significant bacteriuria the eighth day of catheterization.

Meares EM: Current patterns in nosocomial urinary tract infections. J UROL 1991;37:9-12.

A one-month-old girl has massive right hydronephrosis secondary to ureteropelvic junction obstruction. The left kidney appears normal. Isotope renography shows relative renal function of 85% on the left and 15% on the right. The best next step is:

A right nephrectomy.

B right percutaneous nephrostomy.

C repeat renography in three months.

D right pyeloplasty.

E right cutaneous pyelostomy.

A one-month-old girl has massive right hydronephrosis secondary to ureteropelvic junction obstruction. The left kidney appears normal. Isotope renography shows relative renal function of 85% on the left and 15% on the right. The best next step is:

D: "right pyeloplasty." is correct.

The immediate repair of a ureteropelvic junction obstruction is advised in infants. Neither delay nor removal of this kidney is appropriate since the functional capacity may improve after relief of obstruction, particularly in this age group. Temporary nonintubated cutaneous diversion may provide an acceptable alternative in the very ill or septic infant. Nephrostomy drainage is not recommended in young infants.

Bauer SB: Anomalies of the kidney and ureteropelvic junction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 58, pp 1739-1756.

A 27-year-old woman at 30 weeks of gestation has gross hematuria. Ultrasound shows a normal pregnancy and a maternal bladder lesion. Cystoscopy reveals a 3 cm pedunculated papillary lesion. The remainder of the bladder is normal. The most appropriate management is:

A immediate transurethral resection.

B early delivery followed by transurethral resection.

C transurethral resection after term delivery.

D remove tumor with cup biopsy forceps at initial cystoscopy.

E immediate tumor ablation with Nd:YAG laser.

A 27-year-old woman at 30 weeks of gestation has gross hematuria. Ultrasound shows a normal pregnancy and a maternal bladder lesion. Cystoscopy reveals a 3 cm pedunculated papillary lesion. The remainder of the bladder is normal. The most appropriate management is:

C: "transurethral resection after term delivery." is correct.

Transitional cell carcinoma of the bladder during pregnancy is uncommon. Hematuria during pregnancy may be mistaken for antepartum bleeding. Although hematuria is often due to infection, other causes must be kept in mind. Bladder sonography has been very accurate in detecting tumors in pregnant women. Although ultrasound is a good screening technique, it is still not reliable and cystoscopy should be considered in all pregnant patients with documented gross hematuria or persistent microscopic hematuria. Cystoscopy revealed a typical papillary low grade tumor. The endoscopic tumor resection should be performed after the delivery. Immediate resection under anesthesia might induce uterine contractions. Bladder tumors in this age group almost always are low grade and noninvasive, and as such do not require immediate removal.

Messing EM, Catalona WJ: Urothelial tumors of the urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 77, pp 2329-2382.

A 47-year-old man with diabetes mellitus has erectile dysfunction, decreased vibratory sensation in his feet and fasting blood sugars over 300 mg/dl. Effective treatment of the erectile dysfunction can be achieved with:

A exogenous testosterone.

B exogenous gonadotropins.

C improved diabetic control.

D Vitamin B complex.

E penile prosthesis.

A 47-year-old man with diabetes mellitus has erectile dysfunction, decreased vibratory sensation in his feet and fasting blood sugars over 300 mg/dl. Effective treatment of the erectile dysfunction can be achieved with:

E: "penile prosthesis." is correct.

Exogenous androgen, gonadotropin and vitamin therapy does not restore potency in the diabetic male. Even with good control of the underlying diabetes, erectile dysfunction usually persists. Alternative therapies such as sildenafil citrate, intracavernous injection therapy, and a vacuum erection device can also be effective in many of these patients. Some diabetic patients will ultimately require a penile prosthesis.

Benson GS, Boileau MA: The penis: Sexual function and dysfunction, in Gillenwater J, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY. St. Louis, Mosby Year Book, 1996, vol 2, chap 40, pp 1961-1962.

The tetracyclines are:

A bactericidal and inhibit bacterial protein synthesis.

B bacteriostatic and inhibit bacterial protein synthesis.

C bactericidal and inhibit bacterial cell wall synthesis.

D bacteriostatic and inhibit bacterial cell wall synthesis.

E bacteriostatic and inhibit folic acid synthesis.

The tetracyclines are:

B: "bacteriostatic and inhibit bacterial protein synthesis." is correct.

The tetracyclines inhibit protein synthesis by binding the 30S ribosomal subunit which interferes with the addition of amino acids to the growing peptide chain. They are bacteriostatic.

Standiford HC: Tetracyclines, in Mandell GL, Dolin R, Bennet JE (eds): PRINCIPLES AND PRACTICE OF INFECTIOUS DISEASES. New York, Livingstone, 1990, pp 284-294.

A 30-year-old man undergoing VIP (vinblastine, ifosfamide, cisplatum) chemotherapy for metastatic germ cell carcinoma develops gross hematuria. Evaluation includes a CT scan showing normal kidneys and collecting systems and a thickened bladder wall. Cystoscopy discloses no visible tumor in the bladder but the mucosa is diffusely hemorrhagic. The hematuria could have been prevented by:

A aminocaproic acid (Amicar).

B bladder irrigation during therapy.

C intravenous hydration and urinary alkalinization.

D use of carbo-platinum instead of cis-platinum.

E mercaptoethane sulfonate (Mesna).

A 30-year-old man undergoing VIP (vinblastine, ifosfamide, cisplatum) chemotherapy for metastatic germ cell carcinoma develops gross hematuria. Evaluation includes a CT scan showing normal kidneys and collecting systems and a thickened bladder wall. Cystoscopy discloses no visible tumor in the bladder but the mucosa is diffusely hemorrhagic. The hematuria could have been prevented by:

E: "mercaptoethane sulfonate (Mesna)." is correct.

Cytoxan and ifosfamide induced cystitis is caused by acrolein. The concomitant administration of Mesna binds the acrolein, minimizing its untoward effects. Efforts to minimize the contact time with the bladder mucosa may also be beneficial. Hydration and urinary alkalinization would not have any significant effect.

Creaven PJ, Raghavan D: Principles of chemotherapy for genitourinary cancer, in Raghavan D, Scher HI, Leibel SA, Lange PH (eds): PRINCIPLES AND PRACTICE OF GENITOURINARY ONCOLOGY. Philadelphia, Lippincott-Raven Publishers, 1997, chap 8, p 98.

The primary advantage of ultrasound for ESWL stone localization is:

A capability for real-time monitoring.

B short learning curve.

C multifunctional use for diagnosis and endourological treatment.

D ability to identify ureteral calculi.

E efficacy in clinical situations with multiple calculi.

The primary advantage of ultrasound for ESWL stone localization is:

A: "capability for real-time monitoring." is correct.

The major advantages of fluoroscopy for stone location are: a short learning curve, a wide range of indications for in situ treatment, and multifunctional use of x-ray. The localizing problems for fluoroscopy consist chiefly of stones close to the vertebral column and radiolucent calculi. The advantages of ultrasound for stone location are: low purchase costs and maintenance, no x-ray exposures, the possibility of real-time monitoring, and location of radiolucent calculi. Calculi in the middle ureter are almost impossible to localize with ultrasound. Multiple calculi may be problematic for ultrasonic stone location.

Zhong P, Preminger GM: Physics of shock-wave lithotripsy, in Coe FL, Favus MJ, Pak CYC, Parks JH, Preminger GM (eds): KIDNEY STONES: MEDICAL AND SURGICAL MANAGEMENT. Philadelphia, Lippincott-Raven Publishers, 1996, p 532.

Renal dysplasia is most likely to be associated with:

A ectopic ureterocele.

B ureteropelvic junction obstruction.

C vesicoureteral reflux.

D simple ureterocele.

E posterior urethral valves.

Renal dysplasia is most likely to be associated with:

A: "ectopic ureterocele." is correct.

Although renal dysplasia is occasionally seen in association with each of these entities, it is most frequently found in the renal segment subtending an ectopic ureterocele.

Glassberg KI: Renal dysplasia and cystic disease of the kidney, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 59, p 1794.

The major limiting side effect of gonadotropin-releasing hormone agonists in the treatment of BPH is:

A hot flashes.

B gynecomastia.

C oligospermia.

D erectile dysfunction.

E acute urinary retention.

The major limiting side effect of gonadotropin-releasing hormone agonists in the treatment of BPH is:

D: "erectile dysfunction." is correct.

GnRH or LHRH agonists cause hypogonadism by altering the secretion of gonadotropins from the pituitary. This hypogonadism results in erectile dysfunction in men who are potent. This is the major limiting step in the use of these compounds in men for BPH.

Schlegel PN: Medical management of prostatic diseases. ADV INTERN MED 1994;39:569-601.

A 55-year-old woman has a one-year history of persistent asymptomatic, pansensitive Proteus urinary tract infection despite continuous oral penicillin drug therapy. There are multiple 1-2 mm calculi in an upper pole calyx of the left kidney. The right kidney is normal as are cystoscopy and VCUG. The recommended treatment is:

A partial nephrectomy.

B ESWL of the calculi.

C percutaneous chemolysis.

D intravenous antibiotic therapy for two weeks.

E continued penicillin therapy.

A 55-year-old woman has a one-year history of persistent asymptomatic, pansensitive Proteus urinary tract infection despite continuous oral penicillin drug therapy. There are multiple 1-2 mm calculi in an upper pole calyx of the left kidney. The right kidney is normal as are cystoscopy and VCUG. The recommended treatment is:

B: "ESWL of the calculi." is correct.

Patients with struvite calculi can be treated effectively with shock wave lithotripsy. This is especially true when the stone volume is low and the calculi are located in nondependent portions of the renal collecting system.

Pearle MS, Clayman RV: Outcomes and selection of surgical therapies of stones in the kidney and ureter, in Coe FL, Favus MJ, Pak CYC, Parks JH, Preminger GM (eds): KIDNEY STONES: MEDICAL AND SURGICAL MANAGEMENT. Philadelphia, Lippincott-Raven Publishers, 1996, chap 31, pp 720-725.

Michaels EK: Surgical management of struvite stones, in Coe FL, Favus MJ, Pak CYC, Parks JH, Preminger GM (eds): KIDNEY STONES: MEDICAL AND SURGICAL MANAGEMENT. Philadelphia, Lippincott-Raven Publishers, 1996, chap 43, pp 951-970.

The risk of HIV transmission from a single blood transfusion is:

A 1 in 25,000.

B 1 in 50,000.

C 1 in 250,000.

D 1 in 500,000.

E 1 in 1,000,000.

The risk of HIV transmission from a single blood transfusion is:

D: "1 in 500,000." is correct.

In the United States, transmission of HIV by blood transfusion occurs almost exclusively when a recently infected blood donor is infectious but before antibodies to HIV become detectable "during the window period." Based on the latest information estimating the risk of HIV transmission, it was estimated that there was a risk of 1 case of HIV transmission for every 450,000 to 660,000 donations of screened blood. Surgeons should be aware of this statistic as their patients do ask this important question.

Lackritz EM, Satten GA, Aberle-Grasse J, et al: Estimated risk of transmission of the human immuno-deficiency virus by screened blood in the United States. NEJM 1995;333:1721-1725.

The primary advantage of tamsulosin over doxazosin for the treatment of BPH is:

A greater efficacy.

B less retrograde ejaculation.

C more favorable lipid effects.

D no effect on blood pressure in hypertensives.

E no dose titration.

The primary advantage of tamsulosin over doxazosin for the treatment of BPH is:

E: "no dose titration." is correct.

Tamsulosin exhibits partial selectivity for the alpha-1A over the alpha-1B adrenoceptor subtype. Tamsulosin 0.4 mg is an effective dose and is administered without dose titration. Doxazosin requires titration to an effective dose. Tamsulosin is no more effective than doxazosin and has a greater incidence of retrograde ejaculation. Although tamsulosin does not lower blood pressure in hypertensive men, this is not an advantage. The effect of tamsulosin on lipids has not been well characterized.

Lepor H: Natural history, assessment of efficacy and medical treatment of BPH, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, p 1453.

The Mitrofanoff principle of continent urinary diversion depends on continence with:

A an ileal nipple.

B intussuscepted ileum.

C an appendix flap valve.

D detubularized bowel.

E both large and small bowel segments.

The Mitrofanoff principle of continent urinary diversion depends on continence with:

C: "an appendix flap valve." is correct.

The Mitrofanoff principle of continent urinary diversion is represented by a large capacity reservoir of low pressure with a small caliber conduit implanted into the reservoir in a non-refluxing (flap valve) manner (usually appendix) and the use of clean intermittent catheterization to empty the reservoir at regular intervals. The Kock pouch has employed an ileal nipple and the Indiana pouch has employed imbricated ileum. Detubularized bowel and various bowel segments have been utilized in many forms of continent urinary diversion but are not specifically identified with Mitrofanoff.

Snyder HN: Principles of continent urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed. 7, Philadelphia, WB Saunders Co, 1998, chap 103, pp 3190-3246.

A 24-year-old man with a gunshot wound shattering the L-4 vertebral body achieves stable neurogenic bladder dysfunction nine months later. Urodynamic studies will likely show:

A detrusor hyperreflexia, sphincter dyssynergia.

B detrusor hyperreflexia, normal sphincter EMG.

C detrusor areflexia, sphincter dyssynergia.

D detrusor areflexia, normal sphincter EMG.

E detrusor areflexia, denervation potentials on EMG.

A 24-year-old man with a gunshot wound shattering the L-4 vertebral body achieves stable neurogenic bladder dysfunction nine months later. Urodynamic studies will likely show:

E: "detrusor areflexia, denervation potentials on EMG." is correct.

An injury to the vertebral column at L-4 injures the cauda equina and, depending on the extent of neural damage, will produce a loss of motor and sensory fibers to the bladder, pelvic floor, and external sphincter. Detrusor sphincter dyssynergia is produced by suprasacral spinal cord lesions which interrupt the ascending and descending pathways between the sacral spinal cord and the center for reflex bladder and urethral function in the brain stem. Reflex detrusor function requires sacral root and sacral cord integrity. While an areflexic bladder faces fixed internal sphincter activity, that activity is normal and not truly dyssynergic. Since within the sacral and lumbar canal nerve roots are intermingled, a lesion which produces detrusor areflexia would be expected to have a similar effect on the external sphincter; hence, the denervation potentials.

Wein AJ: Neuromuscular dysfunction of the urinary tract and its treatment, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, pp 953-1006.

Which antibiotic is most likely to produce hemolytic anemia in a patient with glucose-6-phosphate dehydrogenase deficiency:

A ampicillin.

B cephalosporin.

C methenamine mandelate.

D nitrofurantoin.

E tetracycline.

Which antibiotic is most likely to produce hemolytic anemia in a patient with glucose-6-phosphate dehydrogenase deficiency:

D: "nitrofurantoin." is correct.

Glucose-6-phosphate dehydrogenase deficiency of red cells occurs in about 10 percent of African-Americans and some peoples of Mediterranean and Near Eastern origin. Hemolytic anemia has occurred when people with a glucose-6-phosphate dehydrogenase deficiency have taken nitrofurantoin. It is probably related to a primaquine type sensitivity reaction and hemolysis stops when the drug is stopped.

PHYSICIANS' DESK REFERENCE, ed 54. Montvale, NJ, Medical Economics, 2000 pp 2517-2520.

Which antibiotic is most likely to produce hemolytic anemia in a patient with glucose-6-phosphate dehydrogenase deficiency:

D: "nitrofurantoin." is correct.

Glucose-6-phosphate dehydrogenase deficiency of red cells occurs in about 10 percent of African-Americans and some peoples of Mediterranean and Near Eastern origin. Hemolytic anemia has occurred when people with a glucose-6-phosphate dehydrogenase deficiency have taken nitrofurantoin. It is probably related to a primaquine type sensitivity reaction and hemolysis stops when the drug is stopped.

PHYSICIANS' DESK REFERENCE, ed 54. Montvale, NJ, Medical Economics, 2000 pp 2517-2520.

The most common long-term sequela of a renal arteriovenous fistula occurring after needle biopsy of the kidney is:

A hematuria.

B flank pain.

C diastolic hypertension.

D tachycardia.

E spontaneous closure.

The most common long-term sequela of a renal arteriovenous fistula occurring after needle biopsy of the kidney is:

E: "spontaneous closure." is correct.

Approximately 70% of fistulas occurring after needle biopsy of the kidney close spontaneously within 18 months. In the absence of significant related symptoms in such a patient, expectant management is appropriate initially. The clinical manifestations of a renal arteriovenous fistula depend upon the size of the fistula. Congestive heart failure, cardiomegaly, and diastolic hypertension are observed in 50% of symptomatic patients. Hematuria is present in about a third, tachycardia is occasionally found, and a palpable flank mass is very rarely encountered. About 75% of patients have an abdominal bruit.

Dunnick NR, McCallum RW, Sandler CM (eds): Vascular diseases, in TEXTBOOK OF URORADIOLOGY. Baltimore, Williams and Wilkins Co, 1991, chap 8, pp 158-171.

A 40-year-old man has painless priapism of 36 hours duration. A needle is inserted into the corpora cavernosa and bright red blood is aspirated. One hundred (100) mcg of phenylephrine are injected intracorporally and prompt detumescence occurs. Thirty minutes later, the penis is again rigid. The most likely etiology of the priapism is:

A idiopathic.

B trazodone ingestion.

C intracavernosal injection of PGE1.

D leukemia.

E perineal trauma.

A 40-year-old man has painless priapism of 36 hours duration. A needle is inserted into the corpora cavernosa and bright red blood is aspirated. One hundred (100) mcg of phenylephrine are injected intracorporally and prompt detumescence occurs. Thirty minutes later, the penis is again rigid. The most likely etiology of the priapism is:

E: "perineal trauma." is correct.

This patient has classic findings of high flow priapism. The priapism is painless. Bright red blood is aspirated from the corpora despite the fact priapism has been present for 36 hours. In addition, in cases of high flow priapism, the intracorporal injection of alpha-adrenergic agonists typically produces detumescence but penile rigidity quickly returns. Almost all cases of high flow priapism reported to date have been secondary to trauma and injury to the intracavernosal artery. A fistula occurs between the cavernosal artery and the corpus cavernosum; blood flow into the corpora is unregulated and high flow priapism occurs. The answer is, therefore, perineal trauma. Almost all cases of idiopathic priapism as well as priapism associated with trazodone ingestion, the intracavernosal injection of PGE1, and leukemia are associated with low flow states.

Lue TF, Broderick G: Evaluation and nonsurgical management of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 39, pp 1208-1209.

A 15-year-old sexually active boy has urethritis, confluent red papules with a yellowish scale on the glans penis, arthritis of the knees, and uveitis. The best initial treatment of the skin lesions is:

A. IM penicillin G.

B. systemic retinoids.

C. topical steroids.

D. topical podophyllin.

E. oral erythromycin.

The first recordable event in the micturition reflex is:

A fall in urethral pressure.

B rise in detrusor pressure.

C cessation of sphincter EMG activity.

D opening of vesical neck.

E rise in abdominal pressure.

The first recordable event in the micturition reflex is:

C: "cessation of sphincter EMG activity." is correct.

Pelvic floor muscular activity, as measured by sphincter EMG activity, is suppressed in the first stage of the micturition reflex. This occurs before any rise in detrusor pressure or fall in urethral pressure. Opening of the bladder neck does not occur until pelvic muscular activity has decreased.

Wein AJ: Neuromuscular dysfunction of the lower urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 29, pp 953-1006.

A three-year-old boy has a palpable abdominal mass. Ultrasound and CT scan suggest the diagnosis of a multilocular cyst. The next step is:

A observation with repeat ultrasound in one year.

B cyst aspiration.

C bone marrow aspirate.

D nephrectomy.

E MRI scan.

A three-year-old boy has a palpable abdominal mass. Ultrasound and CT scan suggest the diagnosis of a multilocular cyst. The next step is:

D: "nephrectomy." is correct.

Microscopic foci of nephroblastoma are often found in the septae of multilocular cysts and thus, a multilocular cyst, while benign itself, is considered a premalignant lesion. This is different from a multicystic dysplastic kidney (MSD). There is very little evidence that MSD is a premalignant lesion, although some controversy exists.

Castillo OA, Boyle ET, Kramer SA: Multilocular cyst of the kidney. A study of 29 patients and review of literature. UROL 1991;37:156.

The most objective measure of the severity of incontinence is:

A number of pads used per day.

B voiding log.

C pad weighing test.

D post-stress test residual volume.

E coefficient of abdominal pressure transmission.

The most objective measure of the severity of incontinence is:

C: "pad weighing test." is correct.

The only validated objective measure of significant urinary loss is shown to be a pad weighing test. Although useful, a voiding log is not a quantitative test. Pads per day reported by patients is uniformly a poor measure because of its subjective nature, dependence on volume, and variability between the degree of wetness and pad changes. Post-stress test residual volume or a transmission coefficient ratio has not been shown to correlate with severity of urinary loss.

Sandvik H, Hinshaw S, Seim A, et al: Validation of severity index for female urinary incontinence and its implementation in an epidemiological survey. J EPIDEMIOLOGY AND COMMUNITY HEALTH 1993;47:497-499.

A two-year-old girl has a febrile UTI. An ultrasound is normal, but a VCUG demonstrates left Grade IV/V vesicoureteral reflux. There is a compound upper pole calyx and simple calyces throughout the rest of the kidney. A DMSA scan of the left kidney one week and nine months after the infection would most likely show:

	One Week	Nine Months
A	normal	normal
B	normal	upper pole defect
C	upper pole defect	upper pole defect
D	multiple defects	normal
E	multiple defects	multiple defects

A two-year-old girl has a febrile UTI. An ultrasound is normal, but a VCUG demonstrates left Grade IV/V vesicoureteral reflux. There is a compound upper pole calyx and simple calyces throughout the rest of the kidney. A DMSA scan of the left kidney one week and nine months after the infection would most likely show:

	One Week	Nine Months

C: " upper pole defect upper pole defect" is correct.

Renal injury after a UTI in a patient with reflux will usually occur at the site of intrarenal reflux, a condition that is associated with compound calyces. Conversely, injury is less likely in other areas of the kidney, where the calyceal configuration is simple and in which there is not likely to be intrarenal reflux. Injury will occur at the time of the first infection in susceptible areas, but may not be permanent. In the case of early aggressive antibiotic therapy a temporary injury may heal and a permanent scar may be avoided.

Majd M, Rushton HG: Renal cortical scintigraphy in the diagnosis of acute pyelonephritis. SEMIN NUCL MED 1992(Apr);22(2):98-111.

A 45-year-old man with no previous voiding difficulty requires catheterization for urinary retention following a lumbar laminectomy. A combined CMG and external sphincter electromyogram shows normal bladder compliance but no detrusor contraction. An increase in pelvic floor muscle activity is seen when the patient coughs or strains. The most likely cause for urinary retention is:

A detrusor-external sphincter dyssynergia.

B detrusor-internal sphincter dyssynergia.

C infravesical obstruction due to benign prostatic hypertrophy.

D transient detrusor areflexia.

E myogenic detrusor decompensation.

A 45-year-old man with no previous voiding difficulty requires catheterization for urinary retention following a lumbar laminectomy. A combined CMG and external sphincter electromyogram shows normal bladder compliance but no detrusor contraction. An increase in pelvic floor muscle activity is seen when the patient coughs or strains. The most likely cause for urinary retention is:

D: "transient detrusor areflexia." is correct.

This patient demonstrates no evidence of a detrusor contraction with filling of the bladder and it is assumed that he is straining to void. The pelvic floor skeletal muscles contract in response to intra-abdominal straining which is a normal cause for increased activity. Significant prostatic hypertrophy with infravesical obstruction is unlikely in the absence of previous voiding difficulty. Because of normal detrusor compliance, there is no evidence that the bladder has been chronically overdistended. The correct answer is transient detrusor areflexia as a result of the spinal cord changes that occur during laminectomy which will usually resolve with time.

Nitti VW: Cystometry and abdominal pressure monitoring, in Nitti VW (ed): PRACTICAL URODYNAMICS. Philadelphia, WB Saunders Co, 1998, pp 38-51.

A 68-year-old man has a nodular prostate with firm induration extending to the seminal vesicles. The serum creatinine is 2.8 mg/dl. There is bilateral ankle edema and the neck veins are prominent. An ultrasound shows bilateral hydronephrosis with ureteral dilation and 10 cc residual urine. Prostate biopsy confirms adenocarcinoma. The next step is:

A LH-RH analogue.

B bilateral orchiectomy.

C pelvic radiation therapy.

D double J-stents.

E percutaneous nephrostomy.

A 68-year-old man has a nodular prostate with firm induration extending to the seminal vesicles. The serum creatinine is 2.8 mg/dl. There is bilateral ankle edema and the neck veins are prominent. An ultrasound shows bilateral hydronephrosis with ureteral dilation and 10 cc residual urine. Prostate biopsy confirms adenocarcinoma. The next step is:

B: "bilateral orchiectomy." is correct.

This degree of renal insufficiency does not warrant diversion or ureteral catheterization without a trial of anti-tumor therapy. Whether to choose radiotherapy or hormonal therapy is still controversial, but it is fair to say that radiation therapy may temporarily worsen the ureteral obstruction due to tumor edema. Hormonal therapy will result in improved ureteral drainage in nearly 60% of patients. Treatment with an LH-RH analogue alone may temporarily worsen the ureteral obstruction unless given in conjunction with an antiandrogen.

Honnens de Lichtenberg M, Miskowiak J, Rolff H: Hormonal treatment of obstructed kidneys in patients with prostatic cancer. BRI J UROL 1993;71(3):313-316.

A 75-year-old man with a history of peptic ulcer disease and gout has a newly-formed 2 cm radiopaque renal calculus, hypercalcemia, and an E. coli urinary infection. Chest x-ray reveals a 3 cm primary lung tumor. The most likely cause of his urolithiasis is:

A absorptive hypercalciuria.

B primary hyperparathyroidism.

C ectopic hyperparathyroidism.

D secondary hyperparathyroidism.

E urinary infection.

A 75-year-old man with a history of peptic ulcer disease and gout has a newly-formed 2 cm radiopaque renal calculus, hypercalcemia, and an E. coli urinary infection. Chest x-ray reveals a 3 cm primary lung tumor. The most likely cause of his urolithiasis is:

C: "ectopic hyperparathyroidism." is correct.

Among the conditions this man has, only the ectopic production of parathyroid hormone related peptide would explain his stone formation. E coli is not a urea splitter and thus should not cause the stone in this man's case. Given a history of peptic ulcer disease, a stone can form due to the development of milk-alkali syndrome, however, this is not one of the listed choices. The presence of hypercalcemia rules out secondary hyperparathyroidism. While absorptive hypercalciuria likely is playing a role in this patient, it is more likely due to the effect of ectopic production of parathyroid hormone related peptide (homology to PTH in the first 13 amino acids). This ectopic production is most commonly seen with squamous cell carcinoma of the lung (as in this case), head or neck.

Baylin SB: Endocrine manifestations of tumors: "Ectopic" hormone production, in Wyngaarden JB, Smith LH Jr, Bennett JC (eds): CECIL TEXTBOOK OF MEDICINE. Philadelphia, WB Saunders Co, 1992, pp 1037-1040.

A 40-year-old woman has a pelvic abscess secondary to perforated sigmoid diverticulitis. The abscess is drained and a colostomy is performed. Subsequently, the sigmoid is resected and the colostomy is closed. One year later she undergoes excision of a large serous cyst of the left ovary. On the third postoperative day, urine begins to drain from the Penrose drain site. The surgical specimen is reported to include a 5 cm segment of ureter. An IVP shows a normal right kidney and ureter. The left collecting system reveals slight hydronephrosis and hydroureter down to L-5. The most appropriate treatment is:

A left nephrectomy.

B transureteroureterostomy.

C interposition of an ileal segment.

D ureteroureterostomy.

E autotransplantation of the left kidney to the right pelvis.

A 40-year-old woman has a pelvic abscess secondary to perforated sigmoid diverticulitis. The abscess is drained and a colostomy is performed. Subsequently, the sigmoid is resected and the colostomy is closed. One year later she undergoes excision of a large serous cyst of the left ovary. On the third postoperative day, urine begins to drain from the Penrose drain site. The surgical specimen is reported to include a 5 cm segment of ureter. An IVP shows a normal right kidney and ureter. The left collecting system reveals slight hydronephrosis and hydroureter down to L-5. The most appropriate treatment is:

B: "transureteroureterostomy." is correct.

Because of extensive damage to the tissues of the left side of the pelvis from the recent and prior diseases, a ureteroureterostomy or interposition of an ileal segment would be very difficult and apt to fail. Because the left kidney functions well and the patient is only 40 years old, nephrectomy is not indicated at this point. Autotransplantation to the right side of the pelvis is a possibility but is a formidable procedure and should be reserved for situations where there are no other reasonable options. The remaining left ureter has sufficient length and is far enough removed from the damaged tissues to permit a satisfactory transureteroureterostomy.

Netto NR Jr: Transureteroureterostomy, in Glenn JF (ed): UROLOGIC SURGERY, ed 4. Philadelphia, JB Lippincott Co, 1991, pp 306-310.

After six months of therapy with an LH-RH analogue, a patient with Stage D adenocarcinoma of the prostate has a serum testosterone of 50 ng/dl. The most likely explanation for this incomplete androgen suppression is:

A increased Leydig cell sensitivity to minute amounts of LH.

B reflex increase in ACTH.

C increased adrenal cortical sensitivity to ACTH.

D failure to suppress dehydroepiandrosterone.

E peripheral conversion of estrogen into testosterone.

After six months of therapy with an LH-RH analogue, a patient with Stage D adenocarcinoma of the prostate has a serum testosterone of 50 ng/dl. The most likely explanation for this incomplete androgen suppression is:

D: "failure to suppress dehydroepiandrosterone." is correct.

LH-RH analogues downregulate pituitary cell LH-RH cell surface receptors and totally block LH release and synthesis. Leydig cells may experience an upregulation of LH receptors, but there is no LH available for binding. The production of dihydroepiandrosterone and androstenedione, the principal adrenal androgens, is regulated by ACTH. Both of these adrenal androgens can be converted to testosterone peripherally but constitute no more than 10% of total testosterone. Manipulations of the LH-RH Leydig cell axis do not affect adrenal androgen production. Peripheral conversion of androgens to estrogens is unidirectional.

Schroder FH: Endocrine treatment of prostate cancer, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 3, chap 89, p 2628.

During an inguinal hernia repair, a normal appearing three-year-old girl is found to have a testicle in the hernia sac. Further workup will reveal:

A congenital adrenal hyperplasia.

B testicular feminization.

C Reifenstein syndrome.

D hernia uterine inguinale.

E Denys-Drash syndrome.

During an inguinal hernia repair, a normal appearing three-year-old girl is found to have a testicle in the hernia sac. Further workup will reveal:

B: "testicular feminization." is correct.

Three percent of girls with inguinal hernias have testicular feminization. A testicle is found in the hernia sac and a chromosome analysis will reveal a 46 XY karyotype. They should be raised as females and will require gonadectomy.

Conte FA, Grumback MM: Abnormalities of sexual determination and differentiation, in Tanagho EA, McAninch JW (eds): GENERAL UROLOGY. Norwalk, Appleton and Lange, 1995, pp 696-727.

Increased levels of plasma testosterone-binding globulin (TeBG) and reduced free testosterone levels may be secondary to:

A androgens.

B estrogens.

C growth hormone.

D glucocorticoids.

E obesity.

Increased levels of plasma testosterone-binding globulin (TeBG) and reduced free testosterone levels may be secondary to:

B: "estrogens." is correct.

Increased blood levels of TeBG cause more binding of testosterone and, therefore, lower free testosterone levels. Estrogen increases plasma TeBG levels, and, therefore, reduces the free testosterone fraction. Conversely, TeBG levels are decreased by androgens, growth hormone, glucocorticoids, and obesity.

Benson GS: Endocrine factors related to impotence, in Bennett AH (ed): IMPOTENCE. Philadelphia, WB Saunders Co, 1994, p 32.

A 44-year-old woman has left flank pain. IVP shows a mass that arises from the inferior aspect of the left kidney and a normal right kidney. Ultrasound shows dense echoes within the mass. CT scan shows a 6.5 cm mass with negative 40 Hounsfield units that enhances with contrast administration. The preferred management is:

A. left partial nephrectomy.

B. left nephroureterectomy.

C. left radical nephrectomy.

D. CT-guided needle biopsy.

E. observation.

A 44-year-old woman has left flank pain. IVP shows a mass that arises from the inferior aspect of the left kidney and a normal right kidney. Ultrasound shows dense echoes within the mass. CT scan shows a 6.5 cm mass with negative 40 Hounsfield units that enhances with contrast administration. The preferred management is:

A: "left partial nephrectomy." is correct.

Negative Hounsfield units on CT scan are strongly suggestive of the presence of an angiomyolipoma. The natural history of renal angiomyolipoma can be correlated with renal size at presentation. Patients with renal angiomyolipomas greater than 4 cm in diameter are likely to be symptomatic and surgery is recommended. Renal sparing surgery is indicated when possible.

Steiner MS, Goldman SM, Fishman EK, Marshall FF: The natural history of renal angiomyolipoma. J UROL 1993;150:1782-1786.

The parameter most likely to improve after varicocelectomy in adults is:

A seminal volume.

B sperm motility.

C sperm morphology.

D sperm density.

E testicular volume.

The parameter most likely to improve after varicocelectomy in adults is:

B: "sperm motility." is correct.

After varicocele repair 70% of patients have improvement in sperm motility, 51% have improved sperm densities, and 44% have improved morphology. In adolescent varicoceles, the testes may be smaller with decreased consistency and, following correction, testicular volume may improve.

Sigman M, Howards SS: Male infertility, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, pp 1364-1372.

A 60-year-old man with a serum PSA of 20 ng/ml seeks treatment for a Gleason's 7 prostate cancer. DRE demonstrates bilateral induration of the prostate. Staging bone and CT scans are normal. He declines radical prostatectomy. The best management is:

A external beam radiotherapy with adjuvant hormonal therapy.

B high-dose external beam radiotherapy.

C transperineal brachytherapy with I-125 seeds.

D neoadjuvant hormonal therapy and brachytherapy with palladium seeds.

E cryosurgery.

A 60-year-old man with a serum PSA of 20 ng/ml seeks treatment for a Gleason's 7 prostate cancer. DRE demonstrates bilateral induration of the prostate. Staging bone and CT scans are normal. He declines radical prostatectomy. The best management is:

A: "external beam radiotherapy with adjuvant hormonal therapy." is correct.

A recent randomized study demonstrated advantages in both biochemical failure and disease-free survival rates in men with locally advanced prostate cancer treated by external beam radiotherapy and hormonal therapy for three years afterwards. The published cancer control rates for brachytherapy, brachytherapy with neoadjuvant therapy, and cryosurgery are poor for patients with high risk features. Trials of external beam radiotherapy with dose escalation are also underway to determine if similar results can be achieved without adjuvant therapy.

Bolla M, Gonzalez D, Warde P, et al: Improved survival in patients with locally advanced prostate cancer treated with radiotherapy and goserelin. NEJM 1997;337:295.

Shinohara K, Rhee B, Presti JC Jr, Carroll P: Cryosurgical ablation of prostate cancer: Patterns of cancer recurrence. J UROL 1997;158:2206.

D'Amico AV, Whittington R, Malkowicz SB, et al: Biochemical outcome after radical prostatectomy, external beam radiation therapy, or interstitial radiation therapy for clinically localized prostate cancer. JAMA 1998;280:969-973.

The fluoroquinolone antimicrobial agents work by:

A inhibition of cell wall biosynthesis.

B alteration of nucleic acid metabolism.

C inhibition of bacterial DNA gyrase.

D inactivation of bacterial ribosomal proteins.

E inhibition of RNA polymerase.

The fluoroquinolone antimicrobial agents work by:

C: "inhibition of bacterial DNA gyrase." is correct.

The fluoroquinolone antimicrobial drugs have rapidly become widely prescribed in urology. They work by inhibition of bacterial DNA gyrase, an enzyme that is involved with DNA supercoiling.

Wright AJ, Walker RC, Barrett DM: The fluoroquinolones and their appropriate use in treatment of genitourinary tract infections. AUA UPDATE SERIES 1993; vol XII, lesson 7, pp 50-55.

A 60-year-old man develops persistent mild diarrhea and fatigue five years following radical cystectomy and Kock pouch urinary diversion for Stage T2 (B1) transitional cell carcinoma of the bladder. Laboratory studies reveal: Hgb 10.8 gm/dl; Na 135 mEq/l; K 4.8 mEq/l; Cl 110 mEq/l; CO2 20 mEq/l; creatinine 1.3 mg/dl. The study most likely to reveal the cause of the above findings is:

A pouchogram.

B serum Vitamin B12 level.

C abdominal CT scan.

D upper GI series.

E barium enema.

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B: "serum Vitamin B12 level." is correct.

This patient's anemia and diarrhea are most likely due to malabsorption and acquired Vitamin B12 deficiency. Fortunately, electrolyte and metabolic disturbances are rare following continent urinary diversion. However, they do occur and are easily corrected if diagnosed.

Steiner MS, Morton RA, Marshall FF: Vitamin B12 deficiency in patients with ileocolic neobladders. J UROL 1993;149:255-257.

A 74-year-old man has shortness of breath, lower extremity edema, and decreased appetite four months after a left percutaneous nephrolithotomy. He admits to intermittent gross hematuria yet his hematocrit is stable. A loud abdominal bruit is heard. An arteriogram confirms a left renal arterio-venous fistula and a normal right kidney. The preferred treatment is:

A nephrectomy.

B after-load reduction.

C partial nephrectomy.

D selective embolization.

E angiotensin-converting enzyme inhibitor.

A 74-year-old man has shortness of breath, lower extremity edema, and decreased appetite four months after a left percutaneous nephrolithotomy. He admits to intermittent gross hematuria yet his hematocrit is stable. A loud abdominal bruit is heard. An arteriogram confirms a left renal arterio-venous fistula and a normal right kidney. The preferred treatment is:

D: "selective embolization." is correct.

Arterio-venous fistulae are rare after percutaneous nephrolithotomy. This patient has with high output congestive heart failure and intermittent gross hematuria. Observation is not an option. Nephrectomy should be reserved for life threatening situations. In the presence of prior urinary stone disease renal preservation should be encouraged. A partial nephrectomy removes important renal parenchyma and is not without potential complications. A less invasive and more optimal approach is selective embolization. The hematuria should rapidly resolve and his heart failure will most likely improve.

Gomez RG, McAninch JW: Complications of renal injuries and their management, in McAninch JW (ed): TRAUMATIC AND RECONSTRUCTIVE UROLOGY. Philadelphia, WB Saunders Co, 1996, pp 141-142.

Hypertension following acute ureteral obstruction is primarily due to:

A increased sodium absorption.

B decreased sodium absorption.

C nephron loss.

D decreased renal blood flow.

E volume expansion.

Hypertension following acute ureteral obstruction is primarily due to:

D: "decreased renal blood flow." is correct.

Acute ureteral obstruction results in decreased renal blood flow due to preglomerular vasoconstriction with a resulting decreased filtered solute load, increased proximal tubular sodium absorption, and decreased sodium delivery to the distal tubule and macula densa. This results in increased renin release from the juxtaglomerular apparatus and may cause renin-mediated hypertension. Decreased sodium absorption does not occur and volume expansion would only be a problem in the setting of bilateral obstruction. Nephron loss would only occur with more prolonged obstruction. Sodium retention and/or volume expansion may cause hypertension with chronic bilateral obstruction.

Hernandez-Llamas G, Palafox-Cervantes G, Borboa-Osuna AL, et al: Role of the renin-angiotensin system in arterial hypertension secondary to acute unilateral urinary obstruction. RENAL FAILURE 1994:16(6):673-679.

After a second hypospadias repair, two fistulae appear when the urethral catheter is removed postoperatively. The catheter is replaced for two weeks but the fistulae do not heal. The best treatment is:

A. silver nitrate fulguration.

B. immediate fistulae repair.

C. place a suprapubic tube and wait six more weeks.

D. wait at least six months before repair.

E. replace the urethral catheter for another 3-4 weeks.

After a second hypospadias repair, two fistulae appear when the urethral catheter is removed postoperatively. The catheter is replaced for two weeks but the fistulae do not heal. The best treatment is:

D: "wait at least six months before repair." is correct.

One month after hypospadias repair, it is highly unlikely that a fistula will heal spontaneously. Immediate intervention by a formal re-repair is contraindicated and a healing period of at least six months is necessary to allow edema to subside, allow revascularization, and optimize the chances for a successful secondary fistula closure.

Secrest CL, Jordon GH, Winslow BA, et al: Repair of complications of hypospadias surgery. J UROL 1993;150:1415.

A 52-year-old man has ESWL of a 22 mm diameter left renal pelvic stone. A 3 cm steinstrasse is found on a one week post-treatment radiograph. He is asymptomatic, even though a renal ultrasound examination shows moderate hydronephrosis. He returns in one month with a fever of 103 degrees Fahrenheit. An IVP shows markedly delayed function of his left kidney. This problem should be managed with antibiotics and:

A laser lithotripsy of the fragments.

B percutaneous nephrostomy.

C ureteral stent.

D ureteroscopic extraction of the fragments.

E ESWL of the most distal fragments.

A 52-year-old man has ESWL of a 22 mm diameter left renal pelvic stone. A 3 cm steinstrasse is found on a one week post-treatment radiograph. He is asymptomatic, even though a renal ultrasound examination shows moderate hydronephrosis. He returns in one month with a fever of 103 degrees Fahrenheit. An IVP shows markedly delayed function of his left kidney. This problem should be managed with antibiotics and:

B: "percutaneous nephrostomy." is correct.

This patient appears to be septic and his upper tract should be drained. Placement of a percutaneous nephrostomy tube is the only listed procedure that will definitively accomplish this goal. The "sand" may pass spontaneously with a nephrostomy tube in place, thereby avoiding basket extraction, ureteroscopic extraction, or ESWL of the ureteral fragments. Ureteral injury may result from persistent attempts to extract the numerous particles.

Eisenberger F, Schmidt A: Management of steinstrasse, in Smith AD (ed): CONTROVERSIES IN ENDOUROLOGY. Philadelphia, WB Saunders Co, 1995, p 372.

The major cause of trabeculation in a man with bladder outlet obstruction is:

A hypertrophy of the muscularis mucosa.

B hypertrophy of the muscularis propria.

C deposition of collagen type I.

D deposition of collagen type III.

E deposition of elastin.

The major cause of trabeculation in a man with bladder outlet obstruction is:

D: "deposition of collagen type III." is correct.

Bladder outlet obstruction results in detrusor wall thickening. Although hypertrophy of the muscularis is generally thought to be responsible for this finding, deposition of collagen, particularly type III, is the more likely cause.

Steers WD: Physiology and pharmacology of the bladder and urethra, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 26, pp 877-878.

The major toxicity of gemcitabine in doses used to treat testis cancer is:

A thrombocytopenia.

B granulocytopenia.

C mucositis.

D acute renal failure.

E peripheral neuropathy.

The major toxicity of gemcitabine in doses used to treat testis cancer is:

A: "thrombocytopenia." is correct.

First-line cisplatin combination chemotherapy will cure 70-75% of patients with disseminated germ cell cancer. Salvage chemotherapy with standard-dose drugs not previously used, such as ifosfamide, will cure 20-25% of patients not cured with their initial induction chemotherapy. Third-line treatment with high-dose chemotherapy along with autologous bone marrow or peripheral stem-cell support has curative potential. Gemcitabine, a new nucleoside analog, is being studied in phase II trials of refractory germ cell cancer at Indiana University and in Germany. The major toxicity is hematologic, thrombocytopenia being the most common, followed by granulocytopenia. This new drug will play a major role in the treatment of refractory germ cell tumors. It is hoped that gemcitabine can be combined with other active drugs, as has been done with etoposide and ifosfamide in the past.

Einhorn LH, Stender MJ, Williams SD: Phase II trial of gemcitabine in refractory germ cell tumors. J CLIN ONCOL 1999;17:509-511.

Bokemeyer C, Gerl A, Schoffski P, et al: Gemcitabine in patients with relapsed or cisplatin-refractory testicular cancer. J CLIN ONCOL 1999;17:512-516.

A 12-year-old prepubertal boy has severe right scrotal pain one day after being kicked in the groin. There is a blue area over the superior portion of the testis, but the examination is difficult due to a hydrocele. Urinalysis is normal. The next step is:

A immediate exploration.

B scrotal ultrasound with Doppler.

C scrotal nuclear scan.

D manual detorsion, exploration.

E observation, anti-inflammatory medications.

A 12-year-old prepubertal boy has severe right scrotal pain one day after being kicked in the groin. There is a blue area over the superior portion of the testis, but the examination is difficult due to a hydrocele. Urinalysis is normal. The next step is:

B: "scrotal ultrasound with Doppler." is correct.

A history of trauma is common in a patient with an acute scrotum. Although a testicular rupture is possible, a more likely possibility in a prepubertal boy is torsion of a testicular appendage with a blue-dot sign. Because the examination is difficult, an ultrasound is most appropriate.

Lerner RM, Mevorach RA, Hulbert WC, Rabinowitz R: Color Doppler US in the evaluation of acute scrotal disease. RAD 1990;176:355-358.

Four months after a vaginal sling procedure, a woman requires clean intermittent catheterization for persistent urinary retention. The best next step is:

A terazosin.

B bethanechol.

C urethral dilation.

D continue clean intermittent catheterization.

E urethrolysis.

Four months after a vaginal sling procedure, a woman requires clean intermittent catheterization for persistent urinary retention. The best next step is:

E: "urethrolysis." is correct.

Lifelong clean intermittent catheterization, although effective, is inappropriate if corrective surgery can restore normal function. Oral bethanechol has not been shown to effectively improve bladder contractility and is not indicated in the presence of bladder outlet obstruction. Alpha-blockers such as terazosin and urethral dilation are options but represent suboptimal therapy when compared to anatomic correction by urethrolysis. The ability of videourodynamics to predict surgical success and whether repeat bladder neck suspension should be performed at the same time as urethrolysis is controversial. Most patients however resume normal voiding and are continent without repeat suspension.

Foster HE, McGuire EJ: Management of urethral obstruction with transvaginal urethrolysis. J UROL 1993;150:1448-1551.

During continent reconstruction of the lower urinary tract using an intestinal segment, efforts are made to prevent reflux into the upper urinary tract in order to avoid:

A upper tract bacteriuria.

B transmission of pressure to the kidney.

C intestinal mucous in kidney.

D upper tract urine storage.

E yo-yo effect and ureteral dilation.

During continent reconstruction of the lower urinary tract using an intestinal segment, efforts are made to prevent reflux into the upper urinary tract in order to avoid:

A: "upper tract bacteriuria." is correct.

After continent reconstruction with an intestinal segment, especially if intermittent catheterization is required to empty the reservoir, there is a high incidence of bacteriuria. An antirefluxing connection of the upper urinary tract protects the kidneys from ascending infection. Intra-reservoir pressure is transmitted to the upper urinary tract even in the absence of reflux. Successful continent reconstruction is predicated on an adequate low pressure reservoir.

St. Clair SR, Hixson CJ, Ritchey ML: Enterocystoplasty and reflux nephropathy in the canine model. J UROL 1992;148:728-732.

A 74-year-old man with metastatic carcinoma of the prostate has been receiving leuprolide treatment for two years. He is asymptomatic except for severe hot flashes. The best way to eliminate the hot flashes is to:

A stop leuprolide; start goserelin.

B add megestrol acetate.

C stop leuprolide; perform bilateral orchiectomy.

D add flutamide.

E stop leuprolide and follow serum PSA.

A 74-year-old man with metastatic carcinoma of the prostate has been receiving leuprolide treatment for two years. He is asymptomatic except for severe hot flashes. The best way to eliminate the hot flashes is to:

B: "add megestrol acetate." is correct.

The optimal treatment of hot flashes from hormonal therapy is megestrol acetate (Megace). Although anecdotal reports suggest that DES may be helpful, a low and safe dose has not been determined. Although intermittent hormonal therapy has been studied in pilot series, its long-term comparability to continuous hormonal therapy is unknown. Neither orchiectomy nor flutamide would reduce the risk of hot flashes.

Loprinzi CL, Michalak JC, Quella SK, et al: Megestrol acetate for the prevention of hot flashes. NEJM 1994;331:347.

A 29-year-old woman has a ureteroscopic extraction of a 6 mm left lower ureteral calculus. A stone analysis reveals that its primary constituent is ammonium acid urate. A 24-hour urine is collected. The volume is 973 ml, and the sample contains little sodium, potassium, or citrate. She should be treated with:

A withdrawal of her laxatives.

B a liquid preparation of potassium citrate.

C a liquid preparation of sodium citrate.

D fluids and allopurinol.

E sodium bicarbonate and acetazolamide.

A 29-year-old woman has a ureteroscopic extraction of a 6 mm left lower ureteral calculus. A stone analysis reveals that its primary constituent is ammonium acid urate. A 24-hour urine is collected. The volume is 973 ml, and the sample contains little sodium, potassium, or citrate. She should be treated with:

A: "withdrawal of her laxatives." is correct.

Ammonium acid urate stone formation has been reported in women with a history of laxative abuse. GI loss of fluid and electrolytes leads to extracellular volume depletion and intracellular acidosis. Urine volume and the excretion of sodium, potassium, and citrate fall. All of the listed therapies would help, but withdrawal of the laxatives is the only choice that would reverse the underlying pathophysiology.

Dick WH, Lingeman JE, Preminger GM, et al: Laxative abuse as a cause for ammonium urate renal calculi. J UROL 1990;143:244-247.

A 42-year-old man with azoospermia and primary infertility has an FSH of 15 (nl 1-10), small volume testes, and an otherwise normal physical examination. The factor that most reliability predicts his ability to have children is:

A vasography.

B serum FSH.

C wife's evaluation.

D testicular volume.

E karyotype.

A 42-year-old man with azoospermia and primary infertility has an FSH of 15 (nl 1-10), small volume testes, and an otherwise normal physical examination. The factor that most reliability predicts his ability to have children is:

C: "wife's evaluation." is correct.

The presence of small volume testes with an elevated FSH suggests the presence of non-obstructive azoospermia. Most men with non-obstructive azoospermia will have sperm retrievable from the testes with multiple biopsies which can be used in conjunction with in vitro fertilization for the wife. The most important characteristic to determine eligibility for treatment will be the wife/s age and fertility. Screening for obstruction (with vasography) is not of value.

Devroey P, Liu J, Nagy Z, et al: Pregnancies after testicular sperm extraction and intracytoplasmic sperm injection in non-obstructive azoospermia. HUM REPROD 1995;10:1457-1460.

The least likely location for an ectopic ureteral orifice in a boy is the:

A seminal vesicle.

B vas deferens.

C bladder neck.

D prostatic urethra.

E pendulous urethra.

The least likely location for an ectopic ureteral orifice in a boy is the:

E: "pendulous urethra." is correct.

The ureter buds from the mesonephric (Wolffian) duct and is absorbed into the bladder base. Incomplete absorption of the upper segment of a duplication may lead to ectopia in those structures of mesonephric origin (seminal vesicle or vas) or into those structures of urogenital sinus origin (bladder, prostatic urethra). Ectopia distal to the verumontanum would not be expected. The development of the distal urethra relates to the development of the penis, not of the urinary tract.

Schlussel RN, Retik AB: Anomalies of the ureter, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 60, p 1821.

A 67-year-old man with muscle invasive transitional cell carcinoma of the bladder is interested in an orthotopic neobladder with cystectomy. A contraindication for anastomosis of a reservoir to the urethra is:

A prior urethral stricture.

B Stage T1 cancer near the anterior bladder neck.

C positive apical prostatic margin.

D multifocal bladder tumors and CIS.

E prostatic urethral CIS.

A 67-year-old man with muscle invasive transitional cell carcinoma of the bladder is interested in an orthotopic neobladder with cystectomy. A contraindication for anastomosis of a reservoir to the urethra is:

C: "positive apical prostatic margin." is correct.

The presence of a tumor at the apical margin is a contraindication for an orthotopic diversion to the urethra. Patients with CIS of the prostatic urethra have a higher risk of urethral recurrence but for unknown reasons the incidence of urethral recurrence is much lower in patients undergoing an orthotopic diversion than those who have either an ileal conduit or a cutaneous continent diversion.

Benson MC, Olsson CA: Continent urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 3, chap 103, p 3202.

The mechanism of action of ketoconazole in the treatment of metastatic prostate cancer is:

A inhibition of adrenal and testicular androgen production.

B competition for androgen receptors on tumor cell membranes.

C increased estradiol production.

D direct cytolysis of tumor cells.

E Leydig cell cytotoxicity.

The mechanism of action of ketoconazole in the treatment of metastatic prostate cancer is:

A: "inhibition of adrenal and testicular androgen production." is correct.

At high doses, ketoconazole inhibits adrenal and gonadal androgen production by interfering with cytochrome P450-dependent 14-demethylation blocking the conversion of lanosterol to cholesterol and inhibition of the 17,20 lyase enzyme. It does not act to inhibit hypothalamic feedback mechanisms or compete for androgen receptors on the tumor cell membrane. Likewise, it is not directly cytotoxic to Leydig cells and is not an indirect inhibitor of tumor replication.

McConnell JD: Physiologic basis of endocrine therapy for prostate cancer. UROL CLIN N AM 1991;18(1):1.

A 17-year-old boy has bright red urine shortly after prolonged exercise. He has no history of genitourinary disease and is otherwise asymptomatic. Urinalysis on a freshly voided urine specimen collected three hours later reveals 1+ proteinuria and > 50 RBC/hpf. There are no casts. Renal ultrasound is normal. The next step is:

A cystoscopy.

B IVP.

C urinary myoglobin.

D urinary calcium/creatinine ratio.

E urinalysis 72 hours later.

A 17-year-old boy has bright red urine shortly after prolonged exercise. He has no history of genitourinary disease and is otherwise asymptomatic. Urinalysis on a freshly voided urine specimen collected three hours later reveals 1+ proteinuria and > 50 RBC/hpf. There are no casts. Renal ultrasound is normal. The next step is:

E: "urinalysis 72 hours later." is correct.

Hematuria after prolonged strenuous exercise, is relatively common in individuals who are otherwise free of congenital urinary tract disease. There may be mild proteinuria with the RBCs. Erythrocyte casts are usually not present and the supernatant urine specimen is clear, ruling out significant hemoglobinuria. The urinalysis in this benign condition is generally normal 48-72 hours after the exercise. Myoglobinuria is characteristically brown and the absence of RBC's makes this diagnosis.

Abarbanel J, Benet AD, Lask D, Kimche D: Sports hematuria. J UROL 1990;143:887.

The obliterated umbilical artery originates from which of the following arteries:

A superior gluteal.

B obturator.

C middle sacral.

D internal iliac.

E external iliac.

The obliterated umbilical artery originates from which of the following arteries:

D: "internal iliac." is correct.

The umbilical artery is the first visceral branch of the internal iliac artery and is very commonly a large trunk that in its proximal unobliterated section gives rise to the superior vesical artery as its first branch. The obliterated umbilical artery is an important landmark in the pelvis as it sweeps lateral to the ureter at the pelvic brim. It can be used to mark the peritoneum in pelvic dissections and may be confused with the vas deferens in the male.

Brooks JD: Anatomy of the lower urinary tract and male genitalia, in Walsh, PC, Retik, AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 3, pp 89-102.

An 80-year-old woman has diffuse CIS of the bladder refractory to two six week cycles of intravesical BCG. She is not a candidate for cystectomy because of medical comorbidity. The best management is:

A thiotepa.

B maintenance BCG.

C mitomycin C.

D valrubicin.

E doxorubicin.

An 80-year-old woman has diffuse CIS of the bladder refractory to two six week cycles of intravesical BCG. She is not a candidate for cystectomy because of medical comorbidity. The best management is:

D: "valrubicin." is correct.

Valrubicin has recently received FDA approval for the treatment of BCG-refractory CIS in patients who are not candidates for cystectomy and is the correct choice. Maintenance BCG is not indicated in a patient who has not responded to 2 induction cycles. Mitomycin C has little if any activity against refractory CIS, and the combination of interferon and BCG has just entered clinical trials and little data to support their use are currently available.

Greenberg RE, Bahnson RR, Wood D, et al: Initial report on intravesical administration of N-trifluoroacetyladriamycin-14-valerate (AD 32) to patients with refractory superficial transitional cell carcinoma of the urinary bladder. UROL 1997;49:471-475.

The factor that is most predictive of sperm being present within the proximal vas deferens at the time of a vasectomy reversal is:

A patient age.

B testicular interstitial fibrosis.

C duration of obstruction.

D length of vas deferens removed.

E antisperm antibody status.

The factor that is most predictive of sperm being present within the proximal vas deferens at the time of a vasectomy reversal is:

C: "duration of obstruction." is correct.

In a review of 1469 vasectomy reversals, the vasovasostomy study group found that the factor most predictive of intravasal azoospermia is the duration of obstruction. The other factors are more predictive of fertility after a successful vasectomy reversal.

Belker AM, Thomas AJ, Fuchs EF, et al: Results of 1469 microsurgical vasectomy reversals by the vasovasostomy study group. J UROL 1991;145:505-511.

A ten-year-old boy with sickle cell disease has had an erection for 24 hours. The most appropriate management is:

A transfusion with packed red cells.

B corporal irrigation with heparinized saline.

C intracorporal methylene blue.

D cavernosum-spongiosum shunt.

E hyperbaric oxygen.

A ten-year-old boy with sickle cell disease has had an erection for 24 hours. The most appropriate management is:

A: "transfusion with packed red cells." is correct.

The etiology of priapism in sickle cell disease is sickling of red blood cells and sludging of blood within the corporal sinuses without true thrombus formation. Despite the risk of AIDS, the most appropriate treatment is hypertransfusion with packed red cells to increase the hemoglobin to more than 10 gm/dl and to decrease hemoglobin S to 30% or less.

Lue TF: Physiology of penile erection and pathophysiology of erectile dysfunction and priapism, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, pp 1172-1173.

The lumbar triangle (triangle of Petit) is formed by the iliac crest and which muscles:

A external oblique and latissimus dorsi.

B internal oblique and latissimus dorsi.

C external oblique and serratus posterior inferior.

D internal oblique and serratus posterior inferior.

E latissimus dorsi and serratus posterior inferior.

The lumbar triangle (triangle of Petit) is formed by the iliac crest and which muscles:

A: "external oblique and latissimus dorsi." is correct.

The lumbar triangle of Petit is the weakest portion of the lumbar area and may assume clinical significance as the presentation of a lumbar hernia. This triangle is useful for muscle-splitting incisions for renal biopsy and proximal ureterolithotomy.

Kabalin JN: Anatomy of retroperitoneum and kidney, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 2, pp 49-62.

Unilateral nephrectomy in a healthy adult is most likely to increase the risk of:

A proteinuria.

B hypertension.

C nephrosclerosis.

D interstitial nephritis.

E renal insufficiency.

Unilateral nephrectomy in a healthy adult is most likely to increase the risk of:

A: "proteinuria." is correct.

Unilateral nephrectomy puts healthy adults at increased risk to develop asymptomatic proteinuria. Mild hypertension may occur during long-term follow-up. Unilateral nephrectomy does not lead to significant deterioration of glomerular filtration, nephrosclerosis, or interstitial nephritis.

Rink RC, Adams MC: The solitary kidney in health and disease. AUA UPDATE SERIES 1992, vol 11, lesson 35.

During gated ESWL, shock wave generation is triggered by:

A P wave.

B heart rate.

C QRS complex.

D ST interval.

E T wave.

During gated ESWL, shock wave generation is triggered by:

C: "QRS complex." is correct.

In order to decrease the likelihood of cardiac arrhythmias, the shock wave is triggered by the "R" deflection of the QRS complex. Nonsynchronized ESWL treatment may induce arrhythmias in approximately 18%-20% of patients. Nonsynchronized treatment will most likely induce ventricular premature contractions. No relationship between the induction of arrhythmias and gender, age, presence of heart disease, stone size, or stone location has been noted. Non-gated shock wave lithotripsy requires less time and analgesia.

Greenstein A, Kaver I, Lechtman, Braf Z: Cardiac arrhythmias during nonsynchronized extracorporeal shock wave lithotripsy. J UROL 1995;154:1321-1322.

Lingeman JE, Newman D, Siegel YI, et al: Shock wave lithotripsy with the Dornier MFL5000 lithotriptor using an external fixed rate signal. J UROL 1995;154:951-954.

The laboratory values that best characterize a patient at high risk for developing a pathologic postobstructive diuresis after placement of a urethral catheter for treatment of urinary retention and bilateral hydroureteronephrosis are:

	K+	Ca+2	CO2	Phos
A	↑	↓	↓	↑
B	↓	↑	↔	↑
C	↔	↑	↑	↓
D	↓	↔	↓	↔
E	↔	↑	↓	↔

The laboratory values that best characterize a patient at high risk for developing a pathologic postobstructive diuresis after placement of a urethral catheter for treatment of urinary retention and bilateral hydroureteronephrosis are:

	K+	Ca+2	CO2	Phos

A: " ↑ ↓ ↓ ↑" is correct.

The patients most likely to develop a postobstructive diuresis are those with hypertension, chronic obstruction, edema, azotemia and congestive heart failure. The laboratory findings most likely to accompany these individuals include hyperkalemia, hypocalcemia, acidosis and increased phosphorous.

Gulmi FA, Felson D, Vaughan ED Jr: Pathophysiology of urinary tract obstruction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 9, p 377.

The maintenance fluid requirement for 24 hours for a 20 kg child with a fever of 39 degrees Celsius is approximately:

A 1400 ml.

B 1500 ml.

C 1600 ml.

D 1700 ml.

E 1800 ml.

The maintenance fluid requirement for 24 hours for a 20 kg child with a fever of 39 degrees Celsius is approximately:

D: "1700 ml." is correct.

The calculation of maintenance fluids is based on the child's standard basal caloric (SBC) expenditure using the Holiday-Segar method. A 20 kg child would require 1000 ml (100 ml per kg for the first 10 kg) plus 500 ml (50 ml per kg for the second 10 kg) per 24 hours at baseline. An additional 10% would be required for each degree above 37.8, so that an additional 12.5% would be added. 1500 plus 188 is 1688, closest to 1700 ml.

Barone MA: Fluid and electrolytes, in Barone MA (ed): THE HARRIET LANE HANDBOOK, ed 14. St. Louis, Mosby Year Book, 1996, chap 11, pp 215-218.

A 62-year-old man becomes oliguric 24 hours after cystectomy with ileal conduit. The BUN/creatinine rise from 15/1.3 pre-op to 40/1.7 post-op. The central venous pressure is 3 cm H2O. Both ureters are stented. The next step in management is:

A. administer a cardiac inotropic agent.

B. restore adequate circulating volume.

C. administer furosemide.

D. begin low dose dopamine infusion.

E. begin a mannitol infusion.

A 62-year-old man becomes oliguric 24 hours after cystectomy with ileal conduit. The BUN/creatinine rise from 15/1.3 pre-op to 40/1.7 post-op. The central venous pressure is 3 cm H2O. Both ureters are stented. The next step in management is:

B: "restore adequate circulating volume." is correct.

Pre-renal azotemia is a common problem in the perioperative period. In this case stents are in place mitigating against obstruction. Pre-renal acute renal failure is suggested by oliguria and a > 20:1 ratio of BUN:creatinine. The initial management is to restore adequate volume status.

Edelstein CL, Alkhunazi A, Yaqoob MM, et al: Etiology, pathogenesis, and management of renal failure, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 1, chap 8, pp 315-341.

A 26-year-old immigrant woman previously immunized with BCG has vague left flank pain. IVP shows renal parenchymal calcifications and distorted polar calyces. Voided urine collections for tuberculosis cultures will require:

A. early morning collections.

B. collections between 4 and 8 P.M.

C. collections with an acid fixative.

D. animal inoculation because of prior BCG.

E. serial cultures to exclude false positive results because of prior BCG.

A 26-year-old immigrant woman previously immunized with BCG has vague left flank pain. IVP shows renal parenchymal calcifications and distorted polar calyces. Voided urine collections for tuberculosis cultures will require:

A: "early morning collections." is correct.

Voided urine cultures to detect tuberculosis are best obtained as early morning samples. Late afternoon collections are useful for schistosomiasis. Cultures may take weeks to be confirmed positive. The efficacy of BCG has tremendous geographic variation yet there is no impact on culture results. There is no longer a need for animal inoculations to confirm the diagnosis of tuberculosis.

Gow JE: Genitourinary tuberculosis, in Walsh PC, Retik AB, Vaughn ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, pp 807-836.

A MAG-3 diuretic renogram is performed for unilateral hydronephrosis. The affected kidney has a split function of 45%. This indicates:

A. the kidney is functioning at just below half of normal.

B. almost half of the tracer remains in the pelvis after washout.

C. the absolute GFR is decreased by 25%.

D. 45% of tracer has been extracted by the kidney at two minutes.

E. the affected kidney is functioning at a normal level.

A MAG-3 diuretic renogram is performed for unilateral hydronephrosis. The affected kidney has a split function of 45%. This indicates:

E: "the affected kidney is functioning at a normal level." is correct.

The split function represents the percentage each kidney contributes to total renal function as indicated by the amount of tracer in the kidneys at two minutes following injection of the tracer. The two numbers always add up to 100% and the margin of error is about 5% either direction. Therefore, the affected kidney is functioning at a normal level.

Majd M: Nuclear medicine in pediatric urology, in Kelalis PP, King LR, Belman AB (eds): CLINICAL PEDIATRIC UROLOGY, ed 3. Philadelphia, WB Saunders Co, 1992, chap 4, p 121.

A 63-year-old man undergoes partial nephrectomy in a solitary kidney. The renal artery is clamped for 40 minutes without the use of surface hypothermia. Post-operatively, the creatinine rises from 1.5 mg/dl to 2.5 mg/dl. The renal structure most likely to have been injured is:

A cortical collecting duct.

B distal convoluted tubule.

C juxtaglomerular apparatus.

D proximal convoluted tubule.

E medullary thick ascending loop of Henle.

A 63-year-old man undergoes partial nephrectomy in a solitary kidney. The renal artery is clamped for 40 minutes without the use of surface hypothermia. Post-operatively, the creatinine rises from 1.5 mg/dl to 2.5 mg/dl. The renal structure most likely to have been injured is:

E: "medullary thick ascending loop of Henle." is correct.

The clinical scenario described is ischemic acute tubular necrosis. This is characterized by tubular cell injury which may be sublethal or lethal. During normal renal function the medulla operates at the brink of hypoxia due to countercurrent diffusion of oxygen in the vasa rectae. During prolonged ischemia medullary hypoxia is intensified and high metabolic requirements of the structures located in the outer medulla are most sensitive to injury. The medullary thick ascending limb of Henle is rich in the energy requiring Na+-K+ ATPase and is most sensitive to ischemic damage.

Thadani R, Pascual M, Bonventre JV: Acute renal failure. NEJM 1996;334:1448-1460.

An 18-year-old boy with an ileal conduit and creatinine clearance of 20 ml/min is considered for urinary undiversion. An ultrasound reveals bilateral chronic pyelonephritis. A VCUG demonstrates a bladder capacity of 40 ml and reflux into an 8 cm right ureteral stump. A left retrograde ureterogram shows a 2 cm ureteral stump. Urodynamic evaluation demonstrates a small capacity bladder but is otherwise normal. The most important contraindication to undiversion is:

A right ureterovesical reflux.

B short left ureteral stump.

C reduced bladder capacity.

D reduced renal function.

E chronic pyelonephritis.

An 18-year-old boy with an ileal conduit and creatinine clearance of 20 ml/min is considered for urinary undiversion. An ultrasound reveals bilateral chronic pyelonephritis. A VCUG demonstrates a bladder capacity of 40 ml and reflux into an 8 cm right ureteral stump. A left retrograde ureterogram shows a 2 cm ureteral stump. Urodynamic evaluation demonstrates a small capacity bladder but is otherwise normal. The most important contraindication to undiversion is:

D: "reduced renal function." is correct.

None of the technical considerations including reflux, ureteral stump length, or small bladder capacity are deterrents to undiversion. Chronic pyelonephritis and scarring are common in this situation. Only severely reduced renal function (GFR < 30ml/m2) is a relative contraindication.

Rowland RG: Indications and contraindications for continent urinary diversion. SCAN J UROL & NEPHR 1992;142:57.

A 30-year-old man has a right orchiectomy for nonseminomatous germ cell testicular tumor. Two consecutive sperm counts determined within one week after orchiectomy both demonstrate eight million sperm per cc. The best description for this situation is:

A. the patient is permanently subfertile.

B. sperm counts are invalid; spermatogenesis is severely depressed by surgery.

C. the patient is subfertile but may subsequently become normal.

D. the patient is subfertile because of an elevation in hCG.

E. the patient has carcinoma in situ of the remaining testis.

A 30-year-old man has a right orchiectomy for nonseminomatous germ cell testicular tumor. Two consecutive sperm counts determined within one week after orchiectomy both demonstrate eight million sperm per cc. The best description for this situation is:

C: "the patient is subfertile but may subsequently become normal." is correct.

Subfertility, based upon abnormal sperm concentrations in patients with newly-diagnosed testicular cancer, can be seen in between 17% and 69% of patients. Hypothesized causes include endocrine, autoimmune, and psychological factors as well as coexisting carcinoma in situ. Nevertheless, a number of these patients will have normalization of semen parameters with further follow-up.

Presti JC, Herr HW, Carroll PR: Fertility and testis cancer. UROL CLIN N AM 1993;20(1):173-179.

A 70-year-old woman has mixed stress and urge incontinence. Her urodynamic study demonstrates an involuntary detrusor contraction with a voiding pressure of 40 cm H_2O and a Valsalva leak point pressure of 40 cm H_2O. She does not improve with oxybutynin. The next step is:

A urethral plug.

B estrogen replacement.

C periurethral collagen injection.

D Burch urethropexy.

E ephedrine.

A 70-year-old woman has mixed stress and urge incontinence. Her urodynamic study demonstrates an involuntary detrusor contraction with a voiding pressure of 40 cm H2O and a Valsalva leak point pressure of 40 cm H2O. She does not improve with oxybutynin. The next step is:

C: "periurethral collagen injection." is correct.

The urodynamic results are consistent with detrusor instability (DI) with adequate detrusor contractility but intrinsic sphincteric deficiency (ISD). Ephedrine is a non-catecholamine sympathomimetic agent which has been shown to stimulate the release of norepinephrine. The net result of alpha-adrenergic stimulation is an increase in the resting urethral pressure, which on a theoretic basis should enhance continence due to sphincter abnormalities, but there is no effect on DI. Estrogen replacement may help but has not been shown to be effective for ISD with or without DI. Burch urethropexy is also not effective for ISD. Collagen injection results in approximately 80% improvement in ISD. Improvement in ISD can decrease severity of detrusor instability symptoms. Data concerning urethral plug for ISD and DI are lacking.

McGuire EJ, Gudziak M, O'Connell H, Ali V: Gynecological aspects of urology, in Gillenwater JY, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY, ed 3. St. Louis, Mosby Year Book, 1996, chap 27, pp 1833-1878.

A 22-year-old man sustains a severe burn of his genitalia. There is marked bullous edema and eschar formation of the entire penis and much of the scrotum. He has had a catheter in his urethra for three days to monitor urine output. The next step is:

A radical eschar debridement.

B split thickness skin grafts as soon as possible.

C antibiotic therapy and topical cleansing with water.

D remove the urethral catheter and insert a suprapubic tube.

E observe until the wound begins to granulate.

A 22-year-old man sustains a severe burn of his genitalia. There is marked bullous edema and eschar formation of the entire penis and much of the scrotum. He has had a catheter in his urethra for three days to monitor urine output. The next step is:

D: "remove the urethral catheter and insert a suprapubic tube." is correct.

If a urethral catheter is used in a genitalia burn, it should be removed after 72 hours to prevent urethral slough and fistula formation. All viable tissue should be preserved. Minimal debridement should be used in conjunction with topical antimicrobials. After granulation occurs, split thickness skin grafts are applied.

Balakrishnan C, Maralani S, Emanuele JA: Traumatic urethral fistula in a patient with burns. J BURN CARE & REHAB 1998:19(1 Pt. 1):57-58.

McAninch JW: Management of genital skin loss. UROL CLIN N AM 1989;16:387-397.

The primary effect of parathyroid hormone (PTH) is to facilitate:

A Vitamin D3 activity on the gut.

B calcium reabsorption in the renal tubule.

C phosphate reabsorption from bone.

D intestinal absorption of calcium.

E Vitamin D3 activity on the renal tubule.

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D intestinal absorption of calcium.

E Vitamin D3 activity on the renal tubule.

The primary effect of parathyroid hormone (PTH) is to facilitate:

B: "calcium reabsorption in the renal tubule." is correct.

Parathormone raises calcium concentrations by increasing renal reabsorption of calcium from the glomerular filtrate, enhancing resorption from bone, and influencing gastrointestinal absorption. Parathormone stimulates both bone formation and resorption and affects gastrointestinal calcium absorption indirectly through regulation of Vitamin D synthesis.

Aurbach GD, Marx SJ, Spiegel AM: Parathyroid hormone, calcitonin, and the calciferols, in Wilson JD, Foster DW (eds): WILLIAMS TEXTBOOK OF ENDOCRINOLOGY, ed 8. Philadelphia, WB Saunders Co, 1992, p 1410.

A 15-year-old boy involved in a motor vehicle accident has multiple injuries. He has been oliguric for 24 hours. Ultrasound reveals no hydronephrosis and a minimal amount of urine in the bladder. Urinary dipstick and urine sediment are normal. The following laboratory values are obtained:

Serum creatinine	3.0 mg/dl
Serum potassium	5.5 mEq/l
Urine osmolality	525 mOsm/l
Urine sodium	18 mEq/l
Fractional excretion of sodium	<1%

The next step is:

A peritoneal dialysis.

B volume replacement .

C hemodialysis.

D renal scan.

E serum myoglobin.

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Serum creatinine	3.0 mg/dl
Serum potassium	5.5 mEq/l
Urine osmolality	525 mOsm/l
Urine sodium	18 mEq/l

B: "volume replacement ." is correct.

The renal concentrating ability is not abolished in prerenal azotemia. Tubular function is also preserved, thus the urinary sodium concentration decreases. The intact tubular function in prerenal azotemia causes concentration of the urinary nitrogenous wastes. This leads to an elevated urine to plasma creatinine ratio, generally exceeding 40:1. Patients with acute renal failure would have increased fractional excretion of sodium and decreased urine osmolality. These patients frequently have an abnormal urinary sediment with renal tubular epithelial cells and tubular casts. If this patient had myoglobinuria, the dipstick would be positive although the urine would be negative for red cells.

Morris C: Acute and chronic renal failure in children, in Kelalis PP, King LR, Belman AB (eds): CLINICAL PEDIATRIC UROLOGY, ed 3. Philadelphia, WB Saunders Co, 1992, pp 1222-1224.

A 65-year-old man develops urinary retention. Physical examination demonstrates a large benign feeling prostate gland. Urinalysis and serum PSA are normal. The serum creatinine is 3.0 mg/dl. An ultrasound reveals moderate bilateral hydronephrosis with dilation of the ureters extending to the bladder. His is placed on urethral catheter drainage. Ten days later, the serum creatinine level is 1.8 mg/dl and ultrasound shows mild hydronephrosis. The most appropriate management is:

A continue catheter drainage.

B doxazosin.

C insert ureteral stents.

D perform prostatectomy.

E clean intermittent catheterization.

A 65-year-old man develops urinary retention. Physical examination demonstrates a large benign feeling prostate gland. Urinalysis and serum PSA are normal. The serum creatinine is 3.0 mg/dl. An ultrasound reveals moderate bilateral hydronephrosis with dilation of the ureters extending to the bladder. His is placed on urethral catheter drainage. Ten days later, the serum creatinine level is 1.8 mg/dl and ultrasound shows mild hydronephrosis. The most appropriate management is:

D: "perform prostatectomy." is correct.

One of the absolute indications for surgical intervention with bladder outlet obstruction due to BPH is renal insufficiency and hydronephrosis. However, operative morbidity is reduced if catheter drainage is first used to allow improved renal function. After ten days, creatinine has improved and it is doubtful further drainage will be useful. Prostatectomy should be performed. The radiographic findings may be chronic at this point. Medical management is contraindicated in the presence of renal dysfunction.

Narayan P: Neoplasms of the prostate gland, in Tanagho E, McAninch JW (eds): SMITH'S GENERAL UROLOGY. Los Altos, Lange Medical, 1992, pp 378-412.

A five-year-old boy who had urethral valves fulgurated as a newborn is referred because of wetting day and night. An ultrasound shows bilateral hydronephrosis and a VCUG shows a trabeculated bladder, no reflux and no residual valve tissue. The next step in evaluation should be:

A antegrade pressure perfusion study.

B cystoscopy.

C postvoid bladder ultrasound.

D 24-hour urine volume and urodynamics.

E diuretic renography.

A five-year-old boy who had urethral valves fulgurated as a newborn is referred because of wetting day and night. An ultrasound shows bilateral hydronephrosis and a VCUG shows a trabeculated bladder, no reflux and no residual valve tissue. The next step in evaluation should be:

D: "24-hour urine volume and urodynamics." is correct.

Boys with urethral valves often have problems with bladder training because of a combination of factors. Often those with early severe obstruction will have a persistent tubular defect resulting in polydipsia and polyuria. (These patients often are acidotic in the first few months of life.) Furthermore, these patients will also have small bladders relative to the large urine volume which will generate rather high pressures during filling (poor compliance). Although there is no persistent mechanical obstruction, they may incompletely empty the bladder because they are continuously struggling against elevated intravesical pressures and may develop a sphincter dyssynergia plus decreased sensation to increased bladder pressures. This often results in wetting day and night. The most useful studies to define this process would be a 24-hour collection for volume (and creatinine clearance) and urodynamics.

Mitchell ME: Complications of urethral valve surgery, in Marshall FF (ed): UROLOGIC COMPLICATIONS: MEDICAL AND SURGICAL, ADULT AND PEDIATRIC, ed 2. St. Louis, Mosby Year Book, 1990, pp 511-525.

A 68-year-old asymptomatic man receives two six-week courses of intravesical BCG for recurrent bladder tumors. A new firm area in the prostate is noted on digital rectal exam. Serum PSA is 3.0 ng/ml. Ultrasound-directed needle biopsy of the lesion reveals a caseating granuloma. The most appropriate recommendation is:

A observation.

B repeat prostate biopsies in three months.

C cycloserine for six months.

D INH for six months.

E INH and rifampin for six months.

A 68-year-old asymptomatic man receives two six-week courses of intravesical BCG for recurrent bladder tumors. A new firm area in the prostate is noted on digital rectal exam. Serum PSA is 3.0 ng/ml. Ultrasound-directed needle biopsy of the lesion reveals a caseating granuloma. The most appropriate recommendation is:

A: "observation." is correct.

Prostatic granulomas are being recognized with increasing frequency in men following intravesical BCG therapy. Although long-term outcome is uncertain, the granulomas are generally asymptomatic and no therapy is recommended. This patient had a prior normal digital rectal exam of the prostate and his serum PSA is normal. Thus, it is unlikely he has prostate cancer and further biopsies are no more indicated in him than in any other age matched male patient.

Messing EM, Catalona WJ: Urothelial tumors of the urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 77, pp 2329-2382.

A 38-year-old man has diarrhea and loses two liters of isotonic fluid. He drinks two liters of water for fluid replacement. These fluid shifts result in:

A decreased renin secretion.

B decreased aldosterone secretion.

C two liters of water added to the ECF.

D decreased ADH secretion.

E water moving from ICF to ECF.

A 38-year-old man has diarrhea and loses two liters of isotonic fluid. He drinks two liters of water for fluid replacement. These fluid shifts result in:

D: "decreased ADH secretion." is correct.

The entire two liters of isotonic fluid are lost from the ECF. Since the loss is isotonic, the osmolality of the ECF did not change and no water moved out of the cells. The two liters of ingested pure water are distributed throughout the entire body water; one-third remains in the ECF, and two-thirds move into the cells. The addition of pure water lowers the osmolality. Even though the decreased ECF volume would stimulate ADH secretion, the reduced osmolality would inhibit it via the hypothalamic osmoreceptors. Osmoreceptor input usually predominates during such "conflicts" unless the ECF volume depletion is very large. Renin and aldosterone secretions would increase because of the decreased ECF volume.

Blumenfeld JD, Vaughan ED (Jr): Renal physiology, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, pp 290-297.

A four-year-old girl with spina bifida is wet between urethral catheterizations. Her detrusor leak point pressure (LPP) is 50 cm H2O and Valsalva LPP is 70 cm H2O. She is started on hyoscyamine (Levsin). A repeat urodynamic study will reveal:

	Detrusor LPP	Valsalva LPP
A	unchanged	unchanged
B	unchanged	increased
C	decreased	increased
D	decreased	decreased
E	decreased	unchanged

A four-year-old girl with spina bifida is wet between urethral catheterizations. Her detrusor leak point pressure (LPP) is 50 cm H2O and Valsalva LPP is 70 cm H2O. She is started on hyoscyamine (Levsin). A repeat urodynamic study will reveal:

Detrusor LPP Valsalva LPP

A: " unchanged unchanged" is correct.

The detrusor LPP is determined by the resistance of the external sphincter. Anticholinergic medication such as hyoscyamine does not effect the external sphincter which is a striated muscle. Therefore, there should be no change in the LPP. The effect of the anticholinergic medication on the detrusor will increase bladder compliance by increasing the volume of urine stored at a given pressure. The closing pressure of the proximal urethra will not be affected.

McGuire E, Fitzpatrick C, Wan JW, et al: Clinical assessment of urethral sphincter function. J UROL 1993;150:1452-1454.

A newborn boy has a left-sided abdominal mass. Ultrasound reveals an infiltrative mass replacing the lower third of the left kidney. The right kidney appears echogenic, but is otherwise normal. The next step is:

A bilateral needle biopsy of the kidneys, then chemotherapy.

B exploratory laparotomy and bilateral biopsy.

C left nephrectomy followed by chemotherapy.

D left lower pole partial nephrectomy followed by chemotherapy.

E left nephrectomy and surveillance.

A newborn boy has a left-sided abdominal mass. Ultrasound reveals an infiltrative mass replacing the lower third of the left kidney. The right kidney appears echogenic, but is otherwise normal. The next step is:

E: "left nephrectomy and surveillance." is correct.

This disease process is most likely a mesoblastic nephroma and should be distinguished from a Wilms' tumor by the patient's age and the fact that it is infiltrative. Newborn kidneys are normally echogenic; hence, the right kidney is normal. The best treatment for a mesoblastic nephroma is nephrectomy and surveillance.

Snyder HM, D'Angio GJ, Evans AE, Raney RB: Pediatric oncology, in Walsh PC, Retik AB, Vaughn ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 74, p 2215.

In idiopathic hypercalciuria, the primary effect of thiazide diuretics is:

A hypocalciuric effect on the proximal tubule.

B decreased intestinal absorption of calcium.

C increased calcium reabsorption by the distal tubule.

D lowered production of calcitriol (Vitamin D).

E elevation of urinary citrate levels.

In idiopathic hypercalciuria, the primary effect of thiazide diuretics is:

C: "increased calcium reabsorption by the distal tubule." is correct.

The primary effect of thiazides with regard to preventing hypercalciuria is at the renal level; both in the distal and possibly in the proximal tubule. To a lesser extent, thiazides may also decrease intestinal absorption of calcium. Thiazides may result in a slight increase in PTH levels; also they may result in a decrease rather than increase in urinary citrate levels. Thiazide has no reported effect on calcitriol levels.

Coe FL, Parks JH, Asplin JR: The pathogenesis and treatment of kidney stones. NEJM 1992;327:1141-1152.

Riese RJ, Sakhaee K: Uric acid nephrolithiasis: Pathogenesis and treatment. J UROL 1992;148:765-771.

A 16-year-old obese girl with myelodysplasia, mental retardation, and poor manual dexterity has total urinary incontinence and is presently treated with diapers alone. She has normal upper tracts and infected urine on occasion. She has recurrent perineal ulcers which do not heal. The best method of management is:

A vesicostomy.

B colon conduit.

C bladder augmentation.

D ureterosigmoidostomy.

E intermittent clean catheterization.

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B: "colon conduit." is correct.

Although intermittent clean catheterization is the treatment of choice for neurogenic bladder patients, in this situation it would be a poor choice. Not only would she potentially be undependable but there is good possibility that she would physically be unable to catheterize. Therefore, intermittent clean catheterization would be contraindicated and for the same reasons augmentation would be absolutely contraindicated. Ureterosigmoidostomy is not an acceptable diversion in the myelodysplastic patient because of the unreliable anal sphincter mechanism. Vesicostomy is usually not an acceptable diversion for the older patient because of the pubic hair and problems with the stoma appliance fit. The colon conduit would be well suited in this clinical situation.

Husmann DA, McLorie GA, Churchill BM: Non-refluxing colonic conduits. A long term life-table analysis. J UROL 1989;142:1201-1203.

Snyder HM III: Principles of continent reconstruction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 101, p 3165.

A 35-year-old woman with juvenile onset diabetes is being treated with intermittent self-catheterization. She has episodes of incontinence between catheterizations. The most effective therapy is:

A tolterodine.

B ephedrine.

C terazosin.

D diazepam.

E bethanechol.

A 35-year-old woman with juvenile onset diabetes is being treated with intermittent self-catheterization. She has episodes of incontinence between catheterizations. The most effective therapy is:

B: "ephedrine." is correct.

This patient is being treated with intermittent self-catheterization for detrusor areflexia secondary to diabetes mellitus. Diabetes is also associated with sympathetic neuropathy which may decrease continence at the level of the proximal smooth muscle sphincter. Therefore, treatment with ephedrine, which is primarily an alpha-sympathomimetic agent, may be expected to increase resistance at this level. The success of ephedrine is at times only transient because of the development of insensitivity (tachyphylaxis). Tolterodine, an anticholinergic, is not indicated in cases of bladder areflexia. Terazosin, an alpha-blocker, is obviously not a rational choice and neither is diazepam since reducing outlet resistance is not the goal. Finally, bethanechol is not effective at improving bladder contractility and would not be expected to augment sphincter activity.

Steers WD, Barrett DM, Wein AJ: Voiding dysfunction: Diagnosis, classification, and management, in Gillenwater J, Grayhack JT, Howards SS, Duckett JW (eds): ADULT AND PEDIATRIC UROLOGY. St. Louis, Mosby Year Book, 1996, vol 2, chap 26, pp 1220-1326.

A 55-year-old obese woman with multiple medical problems is scheduled for a cystectomy and urinary diversion. Pre-operative IVP shows mild bilateral hydroureteronephrosis. At the time of cystectomy the mesentery of the bowel is shortened and infiltrated with fat. The most appropriate type of diversion is:

A continent cutaneous diversion.

B bilateral cutaneous ureterostomies.

C antirefluxing transverse colon conduit.

D ileal conduit with loop stoma (Turnbull).

E antirefluxing sigmoid colon conduit

A 55-year-old obese woman with multiple medical problems is scheduled for a cystectomy and urinary diversion. Pre-operative IVP shows mild bilateral hydroureteronephrosis. At the time of cystectomy the mesentery of the bowel is shortened and infiltrated with fat. The most appropriate type of diversion is:

D: "ileal conduit with loop stoma (Turnbull)." is correct.

The Turnbull loop stoma (ureteroileostomy) is the most appropriate diversion in this obese patient with a short mesentery. There will be less tension on the mesentery as it traverses the abdominal wall and it will be easier to obtain a good stomal bud above skin level. Cutaneous ureterostomy requires a ureter dilated to at least 1 cm, thick walled and well vascularized. In adults with normal ureters there is a high incidence of stricture from ischemia of the cutaneous portion of the nondilated ureter. There is a higher incidence of ureterointestinal stricture using an antireflux technique with the transverse colon. The sigmoid colon may not be the best choice with cystectomy as some surgeons ligate the internal iliac arteries which may compromise rectal blood supply. The short mesentery would also preclude using an ileal or ileo-cecal continent reservoir.

Chechile G, Klein EA, Bauer L, Novick AC, Montie JE: Functional equivalence of end and loop ileal conduit stomas. J UROL 1992;147:582.

Hinman F Jr: Ileal conduit, in Hinman F Jr (ed): ATLAS OF UROLOGIC SURGERY, ed 2, Philadelphia, WB Saunders Co, 1998, section 15, pp 657-662.

After seven days of therapy with clindamycin for a Bacteroides fragilis pelvic infection, a 47-year-old man develops persistent bloody diarrhea, abdominal pain, and fever. A stool assay for Clostridium difficile is positive. In addition to discontinuing the clindamycin, the best management is:

A opiates.

B cefoxitin.

C metronidazole.

D chloramphenicol.

E cholestyramine.

After seven days of therapy with clindamycin for a Bacteroides fragilis pelvic infection, a 47-year-old man develops persistent bloody diarrhea, abdominal pain, and fever. A stool assay for Clostridium difficile is positive. In addition to discontinuing the clindamycin, the best management is:

C: "metronidazole." is correct.

Clindamycin may cause pseudomembranous colitis. The syndrome, which may be fatal, is apparently due to the production of an endotoxin by clindamycin-resistant strains of Clostridium difficile. If significant diarrhea occurs, clindamycin should be discontinued. Agents that inhibit peristalsis, such as opiates, should not be given because they prolong and worsen the condition. The most active drugs against C. difficile are vancomycin and metronidazole administered for 7 to 14 days. Since metronidazole is also an alternative to clindamycin for the treatment of serious anaerobic infections, it would be the appropriate choice for this patient. Cefoxitin and cholestyramine are less effective.

Bartlett JG: Management of clostridium difficile infection and other antibiotic-associated diarrheas. EUR J GASTROENT HEPATOL 1996;8:1054-1061.

The most common genetic alterations in bladder cancer are:

A mutations of the retinoblastoma tumor suppressor gene.

B deletions of genetic material on chromosome 9.

C activating mutations of the ras oncogene.

D mutations of the p53 tumor suppressor gene.

E deletions or mutations of the p16 tumor suppressor gene.

The most common genetic alterations in bladder cancer are:

B: "deletions of genetic material on chromosome 9." is correct.

Loss of genetic material on chromosome 9, which can affect p16 and a number of other genes, is commonly found in both superficial and invasive bladder tumors, and represents the most common genetic alteration in this disease. In contrast, mutations of p53 and Rb are found primarily in high grade or invasive tumors. Mutations of the ras oncogene are uncommon.

Messing EM, Catalona W: Urothelial tumors of the urinary tract, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 3, chap 77, pp 2333-2334.

A seven-year-old girl with myelodysplasia is on CIC. Renal ultrasounds show newly developed moderate hydronephrosis. Her leak point pressure was 35 cm H2O two years ago, and is now 75 cm H2O. The likely cause of this change is:

A recurrent UTI.

B vesicoureteral reflux.

C poor patient compliance with CIC regimen.

D sphincter fibrosis from denervation.

E urethral stricture from intermittent catheterization.

A seven-year-old girl with myelodysplasia is on CIC. Renal ultrasounds show newly developed moderate hydronephrosis. Her leak point pressure was 35 cm H2O two years ago, and is now 75 cm H2O. The likely cause of this change is:

D: "sphincter fibrosis from denervation." is correct.

An increase in leak point pressure (LPP) in children with myelodysplasia can result from two principle factors. Detrusor sphincter dyssynergy can develop with evolution of the neurologic lesion, or in someone with urethral denervation that causes an initially low LPP, muscular fibrosis can produce an obstructive condition.

Bauer SB: Neurogenic dysfunction of the lower urinary tract in children, in: Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 65, p 2025.

A 55-year-old woman develops incisional drainage two days after uncomplicated abdominal hysterectomy for uterine fibroids. The creatinine concentration of the fluid is 35 mg/dl. Abdominal ultrasound shows moderate left hydronephrosis. Retrograde pyelography demonstrates complete obstruction of the distal left ureter and a wire cannot be passed. She is afebrile and her white blood cell count is normal. The best management is:

A percutaneous drain.

B transureteroureterostomy.

C nephrectomy.

D ureteral reimplantation.

E observation.

A 55-year-old woman develops incisional drainage two days after uncomplicated abdominal hysterectomy for uterine fibroids. The creatinine concentration of the fluid is 35 mg/dl. Abdominal ultrasound shows moderate left hydronephrosis. Retrograde pyelography demonstrates complete obstruction of the distal left ureter and a wire cannot be passed. She is afebrile and her white blood cell count is normal. The best management is:

D: "ureteral reimplantation." is correct.

Ureteral injuries occur in approximately 1-2% of pelvic gynecologic procedures. The present case is consistent with a major ureteral injury. In the absence of major risk factors (previous radiation, malnutrition, malignancy, abscess), immediate intervention and repair is indicated. Percutaneous nephrostomy and antegrade stenting, if feasible, would be a reasonable alternative.

Blandy JP, Badenoch DF, Fowler CG, et al: Early repair of iatrogenic injury to the ureter or bladder after gynecological surgery. J UROL 1991;146:761-765.

The vitamin that may reduce bladder cancer recurrence in patients receiving intravesical BCG is:

A. K.

B. B12.

C. A.

D. D.

E. B2 (riboflavin).

The vitamin that may reduce bladder cancer recurrence in patients receiving intravesical BCG is:

C: "A." is correct.

In a randomized prospective trial, Lamm et al showed that a combination of multivitamins plus 40,000 units of Vitamin A, 100 mg of Vitamin B6, 2,000 mg of Vitamin C and 400 units of Vitamin E was associated with a 40% recurrence rate among BCG treated patients while those receiving only multivitamins had an 80% recurrence rate. While it was impossible to determine which vitamin was conferring the most benefit, the authors speculated that Vitamin A was the most active agent. In vitro studies have shown that Vitamin A promotes differentiation of normal and neoplastic cells. Epidemiological studies suggest that carotenoids may have a protective effect in multiple human malignancies including carcinoma of the head and neck, lung, breast, cervix, prostate, and bladder. Moreover, deficiency of Vitamin A results in replacement of transitional epithelium by squamous keratinized epithelium that may exhibit increased mitotic figures, growth into the lamina propria, and vascularization.

Lamm DL, Riggs D, Shriver JS, et al: Megadose vitamins in bladder cancer: A double-blind clinical trial. J UROL 1994;151:21-26.

A 50-year-old man has a right ureteral transection at the level of the pelvic brim during repair of an aortic aneurysm. Preoperatively his BUN was 28 mg/dl, and his creatinine was 1.9 mg/dl. After placement of an aortoiliac vascular graft, the best treatment of the ureteral injury is:

A ureteral ligation, nephrostomy, and re-evaluation in two weeks.

B ureteroureterostomy with omental wrap.

C transureteroureterostomy above the level of the graft anastomosis.

D cutaneous ureterostomy with a ureteral stent.

E ipsilateral nephrectomy.

A 50-year-old man has a right ureteral transection at the level of the pelvic brim during repair of an aortic aneurysm. Preoperatively his BUN was 28 mg/dl, and his creatinine was 1.9 mg/dl. After placement of an aortoiliac vascular graft, the best treatment of the ureteral injury is:

B: "ureteroureterostomy with omental wrap." is correct.

If a ureteral injury is diagnosed at the time of operation, primary ureteroureterostomy can usually be performed. Omentum should be used to protect the repair and isolate the repair from the vascular graft. In addition, an indwelling ureteral stent can be utilized. This form of management has usually been successful. Additional surgery might be required with a cutaneous ureterostomy. It would be unwise to sacrifice the kidney in a man with decreased renal function. It is also inappropriate to consider a transureteroureterostomy in a patient with an aneurysm.

Selzman AA, Spirnak JP: Iatrogenic ureteral injuries: A 20-year experience in treating 165 injuries. J UROL 1996:155(3):878-881.

Watterson JD, Mahoney JE, Futter NG, Gaffield J: Iatrogenic ureteric injuries: Approaches to etiology and management. CANADIAN J SUR 1998:41(5):379-382.

A seven-year-old boy with myelodysplasia is wet despite frequent intermittent catheterization. Videourodynamics demonstrate no reflux with leakage at 300 ml and 20 cm H_2O pressure around a 12 Fr urethral catheter. After catheter removal, he voided at 12 cc/sec with no residual. The best therapy is:

A artificial GU sphincter.

B anticholinergics and ephedrine.

C bladder neck ligation and appendix urethra (Mitrofanoff).

D periurethral collagen.

E implant of bladder tube (Kropp procedure).

A seven-year-old boy with myelodysplasia is wet despite frequent intermittent catheterization. Videourodynamics demonstrate no reflux with leakage at 300 ml and 20 cm H_2O pressure around a 12 Fr urethral catheter. After catheter removal, he voided at 12 cc/sec with no residual. The best therapy is:

A: "artificial GU sphincter." is correct.

This young man has adequate bladder volume and compliance, but has very poor urethral resistance. Anticholinergics would not be indicated, and ephedrine may have temporary but doubtful long-term effect. The patient tolerates intermittent catheterization so that bladder-neck ligation is unnecessary. The Marshall suspension is inadequate therapy for these patients, and augmentation is unnecessary. The Kropp procedure would secure continence, but would mean the patient is totally dependent on catheterization. Because this patient has excellent compliance and is capable of compete bladder emptying, he is an ideal candidate for the artificial GU sphincter.

Kryger JV, Gonzolez R, Barthold JS: Surgical management of urinary incontinence in children with neurogenic sphincteric incompetence. J UROL 2000;163:256-263.

The manifestation of the von Hippel-Lindau syndrome that tends to be clustered only within a subset of affected families is:

A renal cell carcinoma.

B pheochromocytoma.

C retinal angioma.

D cerebellar hemangioblastoma.

E epididymal papillary cystadenoma.

The manifestation of the von Hippel-Lindau syndrome that tends to be clustered only within a subset of affected families is:

B: "pheochromocytoma." is correct.

Penetrance for all of the manifestations of VHL is incomplete. Pheochromocytoma is found only in certain families with the VHL syndrome, primarily those with a missense mutation of the VHL gene. All of the other manifestations of VHL are found in most families with the syndrome.

Neumann HP, Zbar B: Renal cysts, renal cancer, and von Hippel-Lindau disease. KIDNEY INTL 1997,51:16-26.

Walther MM, Enquist EG, Jennings SB, et al: Molecular genetics of renal cell carcinoma, in Vogelzang NJ, Scardino PT, Shipley WU, Coffey DS (eds): COMPREHENSIVE TEXTBOOK OF GENITOURINARY ONCOLOGY. Baltimore, Williams & Wilkins, 2000, chap 9, pp 116-128.

A 65-year-old man with insulin-dependent diabetes chooses a vacuum constriction device for treatment of erectile dysfunction. After attempted use he reports insufficient rigidity for penetration. The most likely explanation is:

A inadequate cavernosal arterial flow.

B fibrosis of the corpora spongiosum.

C corporal muscle dysfunction.

D diabetic neuropathy.

E improper device use.

A 65-year-old man with insulin-dependent diabetes chooses a vacuum constriction device for treatment of erectile dysfunction. After attempted use he reports insufficient rigidity for penetration. The most likely explanation is:

E: "improper device use." is correct.

The vacuum constriction device should create penile rigidity sufficient for vaginal penetration in almost all impotent men who are treated. As long as the patient does not have significant intracorporal scarring from severe Peyronie's disease or a prior infected penile implant, adequate rigidity should be obtained. Vacuum constriction devices even work in patients who have had penile prothesis removed. Often patients who are not given adequate instruction initially will not apply a sufficient amount of vacuum to fully distend the penis or do not use a small enough compressive ring at the base to achieve adequate rigidity. In these cases, instruction and reassurance is usually all that is necessary.

Lewis R: Surgery for erectile dysfunction, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 2, chap 40, pp 1215-1235.

A 21-year-old man had a right inguinal orchiectomy for a clinical Stage I mixed germ cell tumor. He was observed and seven months later, a 4 cm mass is seen on the abdominal CT scan in the interaorto-caval region. The chest x-ray, beta-hCG, and AFP are normal. The best next step is:

A retroperitoneal radiation.

B right modified template retroperitoneal lymphadenectomy.

C platinum based chemotherapy.

D percutaneous biopsy of retroperitoneal mass.

E full bilateral retroperitoneal lymphadenectomy.

A 21-year-old man had a right inguinal orchiectomy for a clinical Stage I mixed germ cell tumor. He was observed and seven months later, a 4 cm mass is seen on the abdominal CT scan in the interaorto -caval region. The chest x-ray, beta-hCG, and AFP are normal. The best next step is:

C: "platinum based chemotherapy." is correct.

This patient has an abdominal relapse after observation. Correct management is 3 cycles of BEP (bleomycin, etoposide, cisplatin) for disseminated germ cell tumor in good risk patients. Biopsy of the mass could miss elements of residual cancer and should not be performed. Although the original tumor showed elements of seminoma, radiation would not be the preferred treatment. Retroperitoneal lymphadenectomy is usually not performed for masses greater than 3 cm on CT scan, avoiding double therapy in these patients.

Richie JP: Neoplasms of the testis, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 3, chap 78, p 2436.

Skinner EC, Skinner DG: Surgery of testicular neoplasms, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 3, chap 109, pp 3418-3419.

The most commonly acquired infectious disease following blood transfusion is:

A cytomegalovirus.

B HIV.

C hepatitis A.

D hepatitis B.

E hepatitis C.

The most commonly acquired infectious disease following blood transfusion is:

E: "hepatitis C." is correct.

Infectious entities acquired after transfusion are hepatitis, CMV and HIV. Post-transfusion hepatitis in 90% of cases is caused by hepatitis-C. The incubation period is between two weeks and six months. Most patients are relatively asymptomatic. A serologic test is now available for its diagnosis such as the tests available for hepatitis B. Cytomegalovirus and HIV are less frequently transmitted in blood than hepatitis.

Recommendations for prevention and control of hepatitis C infection and HCV-related chronic disease. MORBIDITY AND MORTALITY WEEKLY REPORT 1998:47;[RR-19].

A 23-year-old man has sudden onset of fever (103 degrees Fahrenheit), chills, dysuria, increased urinary frequency, and difficulty voiding. Physical examination reveals lower abdominal tenderness and a swollen, tender prostate. Prior to antibiotic treatment, culture should be obtained from the:

A urethra.

B catheterized urine.

C expressed prostatic fluid.

D voided urine after prostatic massage.

E mid-stream urine.

A 23-year-old man has sudden onset of fever (103 degrees Fahrenheit), chills, dysuria, increased urinary frequency, and difficulty voiding. Physical examination reveals lower abdominal tenderness and a swollen, tender prostate. Prior to antibiotic treatment, culture should be obtained from the:

E: "mid-stream urine." is correct.

This patient undoubtedly has acute prostatitis. Prostatic massage is to be avoided in patients with acute prostatitis as this may cause bacteremia. Consequently, c and d are not only unnecessary for diagnosis but might well be harmful. The diagnosis can be made from culture of the urine, as the organism causing the prostatitis is almost always present in the bladder urine during acute prostatitis. Cultures from the urethra are of no particular value in this case. Instrumentation of the lower urinary tract should be avoided in acute prostatitis; furthermore, it is seldom necessary to catheterize a male just to obtain a urine culture.

Fowler J: Prostatic infection and inflammation, in Stein BS, Caldamone AA, Smith JA (eds): CLINICAL UROLOGIC PRACTICE. New York. WW Norton, 1995, pp 331-353.

The physical finding that suggests the most immediate potentially life-threatening condition in the neonatal period is:

A bladder exstrophy.

B unilateral renal mass.

C ambiguous genitalia.

D aniridia.

E scrotal mass.

The physical finding that suggests the most immediate potentially life-threatening condition in the neonatal period is:

C: "ambiguous genitalia." is correct.

Although the presence of bladder exstrophy, or a renal or scrotal mass, mandates prompt surgical referral, these are not life-threatening conditions. Aniridia is associated with Wilms' tumor and will require long-term follow-up. Ambiguous genitalia may represent the sequelae of salt-losing congenital adrenal hyperplasia, which can result in hypovolemic shock if not treated.

Mandell J: Sexual differentiation: Normal and abnormal, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 70, pp 2148-2154.

A 58-year-old woman is five months status post cystectomy and cutaneous continent diversion for a Stage B (pT2) bladder tumor. She complains of persistent low grade fevers and malaise and mild abdominal discomfort over the diversion. Her creatinine is 1.2 mg/dl and an IVP shows mild left hydronephrosis. A urine culture is positive for a pan sensitive E. coli. After treating the infection, the best next step is:

A urine acidification.

B program of mechanical pouch irrigation.

C prophylactic antibiotic administration.

D increase size of drainage catheter.

E pouch-o-gram to evaluate reflux.

A 58-year-old woman is five months status post cystectomy and cutaneous continent diversion for a Stage B (pT2) bladder tumor. She complains of persistent low grade fevers and malaise and mild abdominal discomfort over the diversion. Her creatinine is 1.2 mg/dl and an IVP shows mild left hydronephrosis. A urine culture is positive for a pan sensitive E. coli. After treating the infection, the best next step is:

B: "program of mechanical pouch irrigation." is correct.

It is not uncommon to develop pouchitis after construction of a continent urinary reservoir. This is especially true in the early post-operative period when mucous accumulation can be high. A simple program of mechanical irrigation can decrease the incidence of infections, though asymptomatic colonization may not decrease. Using a larger catheter may help urine drainage but usually does not drain all the mucous. Prophylactic antibiotics or urine acidification are useful in patients who do not respond to simple measures and remain persistently infected. A pouch-o-gram is not the first step in evaluation and treatment at this time.

Benson MC, Olsson C: Continent urinary diversion, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, chap 103, pp 3190-3246.

A 16-year-old phenotypic girl undergoes evaluation for amenorrhea. Testes are found on laparoscopic examination. Karyotype is 46 XY. If the gonads are not removed, the tumor most likely to develop is:

A seminoma.

B Leydig cell tumor.

C gonadoblastoma.

D embryonal cell carcinoma.

E teratoma.

A 16-year-old phenotypic girl undergoes evaluation for amenorrhea. Testes are found on laparoscopic examination. Karyotype is 46 XY. If the gonads are not removed, the tumor most likely to develop is:

A: "seminoma." is correct.

Complete testicular feminization is associated with a female phenotype and these patients often have a delayed presentation unless the gonads are palpable in the inguinal area earlier in childhood. These children have a 46 XY karyotype and the syndrome is due to lack of androgen receptor in the genitalia. There is an increased risk of tumor in the testes and this is most often seminoma. The risk of tumor formation increases after puberty and more than 20% of patients will develop malignancy after age 30 if the gonads are not removed. Gonadoblastoma is a tumor that may occur in intersex states associated with dysgenetic gonads or mosaicism.

Collins GM, Kim DU, Logrono R, et al: Pure seminoma arising in androgen insensitivity syndrome (Testicular feminization syndrome). MOD PATH 1993;6:89.

Newer extracorporeal shock wave lithotriptors are associated with less patient discomfort due to increased aperture size of the shock wave generation/focusing system. This design change also produces a:

A smaller focal volume.

B lower focal pressure.

C larger focal volume.

D higher focal pressure.

E shorter rise time.

Newer extracorporeal shock wave lithotriptors are associated with less patient discomfort due to increased aperture size of the shock wave generation/focusing system. This design change also produces a:

A: "smaller focal volume." is correct.

A reduction in the focal volume is a geometric result of enlarging the aperture of the shock wave generator. Piezoelectric lithotriptors cause little pain, but have a small focal volume and high focal pressure. The method of shock wave generation determines the rise time. Electrohydraulic shock waves have shorter rise times than piezoelectric shock waves. The higher retreatment rates associated with newer lithotriptors are, in part, due to the smaller focal volume. Accurate placement of the stone in the focus is critical with these lithotriptors.

Jenkins AD: A review of current ESWL technology, in Rous SN (ed): UROLOGY ANNUAL. East Norwalk, CT, Appleton & Lange, 1990, vol 4, pp 265-275.

A 24-year-old asymptomatic man is referred for evaluation of genital warts because his sexual partner was found to have a lesion on routine pelvic exam. Physical examination does not reveal any gross lesions on the genitalia or perineum. However, magnified penile surface scanning reveals aceto-white positive lesions on the penile shaft. The best treatment is:

A observation.

B topical trichloroacetic acid.

C topical podophyllin.

D interferon injection.

E CO_2 laser fulguration.

A 24-year-old asymptomatic man is referred for evaluation of genital warts because his sexual partner was found to have a lesion on routine pelvic exam. Physical examination does not reveal any gross lesions on the genitalia or perineum. However, magnified penile surface scanning reveals aceto-white positive lesions on the penile shaft. The best treatment is:

A: "observation." is correct.

Penile condyloma are frequently found in the sexual partners of patients with active disease. In general these lesions are benign except for the association of subtypes 16, 18, and 31 with cervical dysplasia and possibly penile cancer. Subtypes 6 and 11 are benign. Treatment of these lesions with either topical agents or fulguration is successful at eradicating the visible lesion but has a recurrence rate of approximately 90% within one year. Therefore, the best treatment of an asymptomatic patient without lesions and a benign subtype is observation only.

Phelps WC, Alexander KA: Anti-viral therapy for human papillomaviruses: Rationale and prospects. ANN INTERN MED 1995;123:368-382.

The most common cause of a narrowed, pipe-stem deformity of an ileal conduit is:

A chronic urinary infection.

B vascular insufficiency.

C extrinsic obstruction.

D regional enteritis.

E parastomal hernia.

The most common cause of a narrowed, pipe-stem deformity of an ileal conduit is:

B: "vascular insufficiency." is correct.

A pipe-stem deformity of an ileal conduit is due to vascular insufficiency, usually caused by an inadequate mesenteric blood supply. This leads to strictured areas along the course of the loop, resulting in a thin, noncompliant loop with decreased peristalsis and propulsion of urine. Upper tract obstruction and deterioration can be the end product of this process. Treatment usually requires replacement of the entire conduit.

Williams O, Vereb MJ, Libertino JA: Noncontinent urinary diversion. UROL CLIN N AM 1997;24:735-744.

Cystine stones form primarily as a consequence of:

A. increased concentration of urinary cystine.

B. a deficiency of substances that inhibit crystal growth.

C. an excess of substances that promote crystal growth.

D. increased binding of cystine by matrix (mucoproteins).

E. excessive urinary acidity.

Cystine stones form primarily as a consequence of:

A: "increased concentration of urinary cystine." is correct.

Cystine stone formation is the only type of metabolic stone disease which can be determined specifically based on the urinary concentration of a specific ionic constituent. In most patients, once the urinary concentration of cystine increases to more than 200 mg of cystine per liter of urine, cystine crystals will precipitate out of solution with subsequent formation of cystine calculi. If one can reduce the cystine concentration below 200 mg per liter, either with increased urinary volume or reductions in cystine excretion, cystine stone disease can be prevented. However, a high percentage of patients with cystine stone disease will also have concurrent metabolic abnormalities and appropriate metabolic evaluation with subsequent treatment should also be instituted.

Sakhaee K: Cystinuria: Pathogenesis and treatment. MINERAL & ELECTROLYTE METABOLISM 1994;20:414-423.

A 65-year-old man with bladder outlet obstruction secondary to BPH and a history of a CVA undergoes a TURP. He continues to experience urgency and frequency three months postoperatively. The most likely cause of his symptoms is:

A detrusor instability.

B urethral stricture.

C bladder neck contracture.

D UTI.

E residual obstruction.

A 65-year-old man with bladder outlet obstruction secondary to BPH and a history of a CVA undergoes a TURP. He continues to experience urgency and frequency three months postoperatively. The most likely cause of his symptoms is:

A: "detrusor instability." is correct.

An "overactive bladder" can result from a cerebrovascular accident, the resulting symptoms of which may not improve after relief of outlet obstruction. These patients will frequently respond to anticholinergic medication.

Fowler CJ, Kirby RS: Neurological and neurophysiological testing, in Kirby RS, McConnell JD, Fitzpatrick JM, Roehrborn CG, Boyle P, (eds): TEXTBOOK OF BENIGN PROSTATIC HYPERPLASIA. Oxford, Isis Medical, 1996, pp 225-229.

A 40-year-old woman undergoes bilateral adrenalectomy for Cushing's disease with complete resolution of her symptoms. Replacement therapy with cortisone and fludrocortisone is instituted. Three years later, she complains of visual disturbances and is noted to have skin hyperpigmentation. The most likely explanation is:

A. Addison's disease.

B. pituitary adenoma.

C. excessive cortisone replacement.

D. excessive ACTH production.

E. ectopic melanocyte-stimulating hormone secretion.

A 40-year-old woman undergoes bilateral adrenalectomy for Cushing's disease with complete resolution of her symptoms. Replacement therapy with cortisone and fludrocortisone is instituted. Three years later, she complains of visual disturbances and is noted to have skin hyperpigmentation. The most likely explanation is:

B: "pituitary adenoma." is correct.

Ten-20% of patients who have bilateral adrenalectomy for Cushing's Syndrome later develop pituitary tumors which are almost always chromophobe adenomas (Nelson's syndrome). Progressive hyperpigmentation, due to melanocyte stimulating hormone release by corticotropic releasing hormone, headaches, and visual disturbances are due to the expanding adenoma that is shown by skull x-rays or CT scans of the sella turcica. Pituitary basophilic adenoma that was initially postulated by Cushing as causing the syndrome named for him has, in fact, rarely been a factor.

Vaughan ED Jr, Blumenfeld JD: The adrenals, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 3, chap 96, p 2915.

Patients with hyperparathyroidism can best be distinguished from those with renal or absorptive hypercalciuria by measurement of:

A serum calcium.

B fasting urine calcium.

C post-oral calcium load urine calcium.

D fasting urine cyclic AMP.

E post-oral calcium load urine cyclic AMP.

Patients with hyperparathyroidism can best be distinguished from those with renal or absorptive hypercalciuria by measurement of:

A: "serum calcium." is correct.

Hyperparathyroidism produces a combination of absorptive, renal, and bony calcium defects. There is hyperabsorption of calcium through the gut with increased reabsorption of bone and an increased renal loss of calcium due to hypercalcemia in spite of increased reabsorption. The most significant diagnostic difference, other than elevated serum calcium, that separates patients with hyperparathyroidism from those with absorptive hypercalciuria or renal leak hypercalciuria is a moderate increase in parathyroid hormone levels.

Aurbach GD, Marx SJ, Speigel AM: Parathyroid hormone, calcitonin, and the calciferols, in Wilson JD, Foster DW (eds): WILLIAMS TEXTBOOK OF ENDOCRINOLOGY. Philadelphia, WB Saunders Co, 1992, pp 1397-1476.

To know the yearly total number of newly-diagnosed prostate cancer cases in the United States, one would need to know the:

A prevalence.

B incidence.

C lead-time bias.

D positive predictive value.

E length-time bias.

To know the yearly total number of newly-diagnosed prostate cancer cases in the United States, one would need to know the:

B: "incidence." is correct.

Incidence is a direct estimate of the probability of risk of developing a disease during a specific time. In prostate cancer, there were approximately 180,000 new cases diagnosed in 1999. This does not necessarily correlate with clinical or biological significance. Prevalence defines the incidence multiplied by the duration of observation. In prostate cancer, it refers to the number of men who actually have the disease at any particular point in time rather than how many will develop it during a particular time period.

Pienta KC: Etiology, epidemiology, and prevention of carcinoma of the prostate, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, vol 3, chap 80, pp 2489-2492.

The best technique for penile nerve block prior to epispadias repair is:

A raise a wheal around the base.

B midline deep infiltration inferior to the inner symphyseal band.

C raise a wheal around the base and midline deep infiltration.

D deep infiltration at 10 and 2 o'clock.

E deep infiltration at 10 and 2 o'clock and a wheal around the base.

The best technique for penile nerve block prior to epispadias repair is:

E: "deep infiltration at 10 and 2 o'clock and a wheal around the base." is correct.

In epispadias the neurovascular bundle is not midline but displaced laterally at about the 10 and 2 o'clock positions. A local penile block usually requires the deep penile nerves to be blocked to give adequate glans anesthesia and a wheal at the base of the penis to block the nerves of the skin of the shaft.

Gearhart JP, Jeffs RD: Exstrophy-epispadias complex and bladder anomalies, in Walsh PC, Retik AB, Vaughan ED Jr, Wein AJ (eds): CAMPBELL'S UROLOGY, ed 7. Philadelphia, WB Saunders Co, 1998, pp 1946-1979.